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6 February 1981

USSR Report

MILITARY AFFAIRS

No. 1566

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OVERVIEW OF AIR FORCE HISTORICAL DEVELOPMENT

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 pp 1-3

[Article by Engr ColGen M. Mishuk, Hero of Socialist Labor and Lenin Prize Winner: "USSR Air Force Progress"]

[Text] In greeting a famous holiday--USSR Air Force Day--the Soviet people are proudly inspecting the heroic course covered by our Air Force, which has become the people's truly powerful wings. During the years of Soviet power, our country has been transformed into a great air power. The foundation for its future winged power was laid in the incredibily adverse environment of economic ruin, foreign military intervention and the civil war. The development of our young Air Force was directed by V. I. Lenin and the Communist Party. Their constant attention was focused on the issues of organizing flying detachments, equipping them, tactical applications, personnel training and development and the development of domestic aeronautical science and aircraft production. The battles for Soviet power forged the first generation of Soviet airmen, who displayed fearlessness, will power and flying skill, and these battles set the heroic combat traditions.

At the onset of the 20's, the first domestic aircraft were built and ideas on design were formed based on in-depth scientific research by the Central Aerohydrodynamic Institute, which was founded based on V. I. Lenin's instructions.

Additional progress in Soviet aviation continued during the first five-year plans. It is enough to cite the development of the B-1 heavy, all-metal aircraft designed by A. Tupolev's Design Bureau. This machine incorporated the initial achievements in light metals production, the initial achievements of the Soviet design school and the professional expertise of pilots. This aircraft's Moscow-New York flight clearly demonstrated that our Air Force had confidently conquered long distances. The first five-year plans saw the appearance of fighters and reconnaissance aircraft designed by N. Polikarpov--the I-3, the DI-2, the U-2 and the R-5.

The mid-30's were marked by the development of phased winged machines, such as N. Polikarpov's I-16 and S. Il'yushin's DB-3, and also by the development of domestic engines by the design groups of A. Shvetsov, A. Mikulin, V. Klimov and V. Dobrynin. Specifically, the M-34R motor built under A. Mikulin's supervision was installed on A. Tupolev's ANT-25 aircraft with their record-breaking range.

By that time, our pilots were ready for the most complex and important flights. So, the two lines of progress in Soviet aviation--building improved engines and aircraft and developing first-class pilots--merged together and created an environment for successful implementation of the party's slogan: "Fly the Furthest, Highest and Fastest!" The responses to this appeal were the legendary non-stop trips by M. Gromov, V. Chkalov, V. Grizodubova and their crews and V. Kokkinaki's high-altitude launches.

By the beginning of the third five-year plan, our aircraft industry had been transformed into a major, independent sector capable of producing ever-increasing numbers of fighter aircraft, bombers and heavy aircraft. Between 1930-1932, the USSR produced an average of 860 aircraft per year; in 1938, aircraft production increased to 5,469.

The Communist Party Central Committee and the Soviet government took energetic steps for additional improvement of our aviation. A special Soviet aviation development program was worked out, a decision was made to build new aircraft plants, a large team of designers was assigned to design and develop new military aircraft and aircraft engines and provisions were made for an entire package of measures to provide additional improvement in aviation physical plant and supplies and to reorganize the aircraft industry's work. A February 1939 party Central Committee meeting drew up the program for developing Soviet aviation and for equipping it with modern equipment. To this meeting, they invited Air Force and aircraft industry leaders, aircraft designers and pilots.

In the fall of the same year, the Central Committee Politburo studied the issue "On Modernization of Current Aircraft Plants and Construction of New Ones." The decree noted: during 1940-41, 9 new plants shall be built and 9 old ones shall be modernized. Soon afterwards, seven plants from other sectors of socialist industry were transferred to the aircraft industry.

In January 1940, a Politburo meeting held a special discussion on aircraft industry operations. It adopted a resolution to reconstitute and strengthen the People's Commissariat for the Aircraft Industry, modernize the Central Aerohydrodynamic Institute and establish flight testing institutes and new design groups.

Independent design bureaus were picked out from the experimental design bureau headed by A. Tupolev. The bureau executives were talented designers: V. Petlyakov, A. Arkhangel'skiy, P. Sukhoy and V. Myasishchev. The new design bureaus were headed by Ar. Mikoyan, M. Gurevich, S. Lavochkin, M. Gudkov and V. Gorbunov. In the field of engine production, the groups of S. Tumanskiy, Ye. Urmin, A. Charomskiy and others, got down to work, along with the already operational design bureaus.

A remarkable example of the distinctiveness, originality and boldness in Soviet design thinking was S. Il'yushin's IL-2 ground attack aircraft. It occupies a special place in domestic aircraft production; its combat effectiveness was exceptional and the precision of its destructive ground attack strikes was preordained. This was supplemented by its enormous survivability and ability to conduct all-weather sorties and strike targets from tree-top level or from a dive. It was not by accident that the IL-2 was the most mass-produced aircraft in the last war. The German designers' attempts to build a similar ground attack aircraft ended in total failure and the legendary IL-2 was the only machine of its kind for a long time and was a vivid testimony to the high state-of-the-art in Soviet aircraft.

During the first months of the Great Patriotic War--at V. Bolkhovitinov's initiative--work got underway on a jet fighter interceptor design with a liquid-fuel jet engine designed by L. Duskhin. During the development of this unusual machine, the designers came up with a number of bold and progressive solutions. On 15 May 1949, test pilot Capt G. Bachchivangi made his historic flight in the DI-1. This was our country's first jet start; it entered a vivid page in the glorious chronicles of Soviet aviation and was a new phase in the development of aircraft.

During the severe war years, S. Lavochkin's and A. Yakovlev's design bureaus developed unsurpassed fighters. For example, the LA-5 and LA-7 advantageously distinguished themselves from similar foreign aircraft in speed, rate of climb, fighting power and adaptibility to adverse war time conditions and they even surpassed them in a number of performance and combat characteristics. A large number of the fighters during this period were aircraft designed by A. Yakovlev. There was an increase in their speed and range; their vertical maneuverability improved; and there was an increase in armament. In the spring of 1943, the light YAK-3 underwent testing. It surpassed German aircraft in all aerial maneuvers at altitudes up to 6,000 meters. This aircraft achieved the highest speed for domestic piston-engine aircraft--745 km/hr.

The Air Force's main tactical bomber during the Great Patriotic War was the PE-2. It penetrated the strongest air defense zones and delivered devastating bombing strikes against enemy men and equipment. In speed, the PE-2 surpassed the He-111 fascist bomber by over 100 km/hr and it exceeded the Ju-88 fascist bomber by 75 km/hr. This high speed made day time operations possible.

During the war, Soviet aircraft manufacturers put the twin ASH-82-engine TU-2 into series production. Its flight performance was the best for a bomber during the Great Patriotic War. It was in service with the Air Force for many years. The TU-2 had a large internal bomb load and powerful defensive armament; it was easy to fly, could fly on one engine and had high tactical survivability.

Powerful strikes against the enemy were delivered by Long Range Aviation. In service with it were the IL-4, YER-2 and TE-8 nighttime bombers.

Along with the development of new aircraft and aircraft engine types, a great deal of attention was focused on improving and developing aircraft armament and equipment systems. Soviet designers achieved uninterrupted improvements in fire power; they modernized cannons and munitions, radio equipment and radio navigation aides and introduced rocket weapons.

During the final stage of the fight against Hitler's Germany, our air forces were several times numerically superior to the fascist bloc's air forces, while our flying personnel had been successfully reinforced by outstandingly trained young fighting men. Throughout the entire Great Patriotic War, Soviet pilots flew approximately 3.1 to 5 million combat sorties and inflicted enormous damage on enemy resources. Of all fascist Germany's aircraft losses during the war, three-fourths were destroyed on the Soviet-German Front. Heavy losses were inflicted on the enemy's air forces by the decisive actions of the National Air Defense Force's fighter aircraft. Two-thirds of the sunk and damaged enemy ships were accounted for by Naval Aviation pilots.

In the post war period, the Soviet air forces acquired a new trait--they were jet-powered. In 1944, the party had already planned steps to develop jet aircraft. The design of a new type of aircraft was assigned to the design bureaus headed by Ar. Mikoyan, A. Yakovlev, P. Sukhoy, S. Lavochkin, S. Il'yushin and A. Tupolev. Each of them made a large contribution to the development of jet technology. Aircraft such as the MIG-15, YAK-25, IL-28, TU-16 and SU-76, were the pride of our Air Force. Jet engines helped achieve an abrupt leap forward in speed of approximately 4 times, in altitude of 2.5-3 times and in range of 1.5-2 times.

A worthy contribution toward equipping the Air Force with the new technology was made by the workers, engineers and technicians of our aircraft industry, which was headed for many years by the remarkable aircraft industry manager P. Dement'yev.

In subsequent jet models, Soviet designers successfully employed swept wings, delta wings and, finally, variable geometry wings. The engines turned out remarkable power, especially with the afterburners engaged. Automation, computers and guided weapons were aggressively introduced. These are the innovations which make the modern representatives of the MIG's, YAK's, SU's and TU's formidable and reliable in all combat applications.

The pride of the Air Force are the third generation supersonic jet aircraft. They incorporate the latest advances in technological progress and design thinking and the superior technological capabilities of socialist industry. These aircraft--with their modern engines, latest navigation equipment, powerful missiles and cannons, target acquisition systems and fire control systems--are formidable aircraft systems.

A large position is occupied by tactical air forces. Modern aircraft are able to employ all classes of missiles and bombs in various mixes, which makes it possible for the tactical air forces to accomplish a broad range of cover and support missions for Army formations. With the introduction of heavy-payload aircraft into service with Military Transport Aviation units, there is a capability to air lift major assault forces. All types of aircraft and all the air arms are continually evolving.

Today, our Air Force possesses high mobility and maneuverability which make it possible to swiftly shift air efforts from one sector or theater of operations to others; the Air Force has the ability to penetrate to the enemy heartland, use various weapons and electronic warfare in all weather, in any season and at any time of the day and deliver surprise air strikes against major fixed targets and small, mobile targets. Our Air Force has become a powerful Service of the USSR Armed Forces, a Service which is able to have a considerable effect on the course and outcome of military operations.

The main, definitive statistic of the Soviet Air Force's power is its high combat readiness. It is achieved by the sustained military work of all personnel, by the clear-cut organization of training, by the broad scope of socialist competition and by the strictly prescribed life style and service life of the fighting airmen.

The establishment of the modern Soviet Air Force is a result of the constant concern of the Communist Party, the Leninist Central Committee, the Central Committee Politburo and MSU Comrade

L. I. Brezhnev--general secretary of the CPSU Central Committee, chairman of the USSR Surpreme Soviet Presidium and chairman of the Defense Council--to improve the Air Force. It is a result of the enormous success of developed socialism's socialist economic system, our country's advances in science and technology and the heroic and selfless labor of our workers, technicians, engineers, designers and scientists.

Large contributions to improve modern aircraft are being made by the design groups headed by R. Belyakov, Ye. Ivanov, G. Novozhilov, A. Tupolev, A. Yakovlev, O. Antonov, S. Mikheyov, M. Tishchenko and others. An additonal improvement in the performance of our military aircraft has been guaranteed by the successful evolution of domestic engine production. Modern supersonic aircraft are equipped with powerful, light low-consumption engines built by the groups headed by A. Lyul'ka, N. Kuznetsov, P. Solov'yev, S. Izotov, V. Lotarev and others.

The successes and advances of our homeland's air forces are greatly facilitated by test pilots A. Bezhevets, V. Petrov, A. Presnyakov, G. Butenko, V. Khomyakov, V. Tsaregorodtsev and others, as well as by the groups at research establishments and the outstanding scientists G. Svishchev, S. Shlyakhtenko, Ye. Fedosov, P. Belyanin and others.

The Soviet air forces are the cradle of astronautics. In a little over two decades, astronautics has achieved outstanding successes. For approximately three years, the Soviet people have attentively followed the flights of the Salyut-6 orbital station. For over 400 days, it has operated in a manned mode. At present, the fourth extended expedition--consisting of LtCol L. Popov and Flight Engineer V. Ryumin--are working on board the station. An advance in domestic astronautics was the testing of the Soyuz-2 transport ship.

Enormous successes have been achieved by Aeroflot.

Airmen are greeting USSR Air Force Day with intense flying training. A great deal of political and work enthusiasm enlivens Air Force personnel. In the lead are the initiators of the patriotic enterprise, the airmen of the Red Banner bomber regiment commanded by Col G. Treznyuk, the Red Banner V. I. Lenin Helicopter Regiment and other units. The competition in honor of the 110th anniversary of V. I. Lenin's birthday and the 35th anniversary of VE Day is being developed further. The airmen are making a worthy contribution toward strengthening the socialist homeland's defensive might. True sons of our nation, unanimously united around Lenin's party and its Central Committee headed by L. I. Brezhnev and in a single combat formation with the personnel of the Soviet Armed Forces and the personnel of the Warsaw Pact armies, our airmen are always ready to defend their beloved homeland and the entire socialist community. They are striving for a welcome worthy of the 26th CPSU Congress.

9001
CSO: 1801

USING COMPETITION TO IMPROVE COMBAT TRAINING

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 pp 4-5

[Article by LtCol A. Nitay, military pilot first class: "Competition Criteria"]

[Text] Socialist competition is an important means for achieving the best results in combat training. What are the basic criteria of socialist competition which can be considered the primary ones in evaluating success? This question is not as easy as it might seem at first glance since combat training is affected by many factors.

Let's assume that a unit has demonstrated only outstanding results in all the competition items and is among the leading units. But, can it accomplish its assigned mission? Moreover, there are also just average units. How well are they able to carry out their assignments according to the command element's concept and the evolving situation? What resources will they expend doing this? It follows that, in evaluating the airmen's military training level, it is necessary to consider their ability to accomplish operational missions in a specific environment.

Furthermore, each man's clear-cut actions while preparing equipment for a sortie within a rigid time budget, the personnel's level of preparation for airborne operations and on-the-job teamwork and efficiency are important indicators of combat readiness. No matter how high a group's operational efficiency is, if it does not stay within the standard, this means that it will inevitably be at risk in an actual combat environment. Thus, the readiness of personnel and equipment to engage in combat operations within the minimum possible time also is characteristic of the unit's overall combat readiness. This means that if the leading group's time figures have begun to approach the upper limits, this should alert the command element. It is absolutely necessary to find the causes and take immediate steps to prevent disruption.

The squadron which was until recently commanded by Capt A. Nikitovskiy was outstanding for many years. They had developed their own traditions and their own approach toward accomplishing combat training missions. Due to the commander's skillful leadership and the party and Komsomol organizations' activities, the unit was firmly entrenched in the leading position in socialist competition. Mutual understanding and goodwill were harmoniously combined with high standards in everything concerning duty and military functions. As a result of the well organized training, the majority of the pilots were first class fighting airmen and the technicians were specialists first class or second class. Each man carried out his duties in an outstanding manner and was able to stand in for his comrade when necessary. When going on alert, the men invariably broke the established standards.

But then, command of the squadron was assumed by Capt A. Yevsyukov, a first class pilot and energetic individual. He aggressively got down to work. He was interested in his subordinates professional development and their needs; he participated in the proceedings of the party and Komsomol organizations and maintained the airmen's high spirits in accomplishing their assigned missions. Gradually, success set the squadron commander's mind at rest. It seemed to him that the rhythm of combat training was smoothly organized and did not require any intervention. While evaluating the competition results, he did not notice in time that several teams and crews, which had previously cut the standards in half, were now having difficulty staying within them.

Once, during a routine inspection, the unit did not stay within the established deadline. And, not seconds but over a minute was required to complete fighter sortie preparations. Was this perhaps a random event? Hardly, it was more like a normal event. When people forget that all operations and activities must continually be improved, a standstill, and then a drop, is unavoidable. It goes without saying that the commander bears a lot of responsibility but this does not relieve the party organization, Komsomol organization and each officer of their responsibility.

Experienced supervisors, political officers and staff officers helped Capt Yevsyukov analyze the current situation. Now, things are improving in the squadron. The commander himself and all personnel learned a severe lesson and they drew the proper conclusions from it.

Here is another example. For a long time, the unit commanded by Maj M. Kondrat'yev was not able to correct its deficiencies. They did not have strong, well-coordinated flights and teams. When the squadron went on alert, someone would not be informed of the signal to assemble at times, while at other times there would not be anybody to replace the specialists on detail, etc. There were also other mistakes which continually kept the squadron in a tizzy.

Maj Kondrat'yev decided to review the entire combat training plan. At a party meeting, the communists discovered the reasons for the deficiencies, critically evaluated their resources and slack and outlined specific ways of improving combat training and raising the class rating of flying personnel and technicians.

SrLt Nikiforov, the party bureau secretary, suggested that flight commanders Maj V. Mogiliko and Capt A. Nogin share their experience in training junior pilots and preparing them to take their proficiency examinations. The pilots told the young men how they had mastered day and night combat applications under adverse conditions and the difficulties they encountered and they advised them what their attention should be primarily focused upon.

At the party bureau, they listened to communist A. Kurachenko's report on the activities of engineer associations and the lessons which promote in-depth knowledge for junior aircraft specialists. Communists V. Kashaduv and S. Greschenov held a round of discussions with WO's, NCO's and EM. The airmen made recommendations for reducing the time required to put the squadron on an alert footing.

A lot that was beneficial was gained from the meeting with veterans. For example, LtCol (Ret.) V. Babiy, a former pilot, and Capt (Ret) I. Frolov, a former squadron engineer, told them how combat sortie preparations were organized during the Great Patriotic War and what special attention was focused on during intensive combat operations. With due regard for changes in equipment, this combat experience was used in the squadron.

A phase-by-phase analysis of the men's and equipment's preparations showed that the pilots lost a lot of time putting on their high-altitude gear. After the appropriate training sessions, each pilot mastered the high-altitude specialist's operations and each one can now provide qualified assistance to a comrade. They also thought through the traffic pattern for taking flying personnel to the aircraft.

After the squadron had transitioned to new equipment, the armament specialists were not staying within the established standards for a while. The stereotyped actions developed on the previous aircraft were having an effect; in addition, completely new skills were required for the armament job. Work improvement suggestions came to the rescue. Tech Svc SrLt Z. Zapshal and WO's A. Losenko and S. Tkachuk modified the delivery systems, designed and made auxiliary equipment. Thus, preparation time was reduced by another 10 percent.

They also considered the procedures for aircraft sortie preparations. They organized four integrated preparations teams; each specialist could do an absent comrade's job.

Of course, all of these successes were the result of a great deal of painstaking work by all personnel and a result of deeply thought out special lessons and training sessions.

Under the guidance of the political officer, party and Komsomol activists efficiently publicized the progress of socialist competition within the squadron in the wall press, in posters and in flyers. The men saw that their creative search was beneficial to the common cause and they conscientiously tried to carry out their responsibilities and strived for a situation where the figures would be even higher. The squadron confidently gained speed in combat training. During one of the tactical flying exercises, the airmen broke the standards for going on alert with a respectable amount of time to spare. As a result, the unit took first place in the competition.

It must be said that it is combat readiness and operational efficiency that are the basic, primary indicators for determining placement in competition. These concepts are not identical. But, they also cannot be separated. Operational efficiency is the first principle of combat readiness. Only by analyzing each separately and then together is it possible to give a unit the fullest and most objective rating.

In their activities, unit commanders, political officers and staffs focus a great deal of attention on the educational role of competition. Based on the initiative of party and Komsomol organizations, there is an exchange of flying experience and equipment preparation experience; there are set-piece lessons, displays and question and answer sessions. Their goal is to disseminate advanced methods for preparing and using military hardware. The primary thing in competition is not simply to take first place but to achieve a situation where the "rivals" have mastered advanced techniques to a tee. Then, combat readiness will improve and the intensity of competition will increase.

9001
CSO: 1801

ART AS A PILOT'S PASTIME

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 p 5

[Article by LtCol P. Yefimov: "A Pilot's Fascination: Inlaid Wood Mosaics"]

[Text] Ivan Konstantinovich stepped back from the unfinished picture and carefully, appraisingly looked at it. No, something was not right! The clouds looked unnatural. He tried to correct it. Now,he thought, they seemed right....

Yes, this is exactly how the clouds were then. Dark, with a leaden-colored tint. The pilot recalled very well both the day and the exact minute when the warning light began to flash with a cold glare. The airfield was still over 10 kilometers away. "What's wrong?" thought LtCol Lisitsa. He tried to remember the position of each indicator in order to analyze the cause of the situation later.

...A stroke, another stroke. And the canvas comes to life. He has already thought of a name for it--"Attacking Fighter Bombers." He wants to convey the rapidity of air combat, the speed, the maneuver. At such times, Ivan Konstantinovich feels like an artist and a pilot. Lisitsa added several strokes and was satisfied. Exactly as in that battle....

At that time, the senior commander had arrived at the range. Officer Lisitsa had an impending bombing sortie. Based on a life-long rule, the pilot immediately shut out all his worldly concerns as soon as he got in the cockpit. Now, for him, there was only the "enemy" who had to be destroyed on the first pass. He "made" the target immediately. He carefully lined up the crosshairs on it and pressed the Release button.

Neither at school nor at the Yu. A. Gagarin Air Force Academy did Ivan Konstantinovich give up his fascination. He painted, made all kinds of plastic aircraft models, made wood carvings and drawings. He has recently mastered a new kind of art--inlaid wood mosaics. The picture is made from pieces of wood with a specific tint. He is especially good at portraits and landscapes. Of interest are his works "Pushkin at the Sea," "The Ninth Wave" and "Astronaut Dzhanibekov." Incidentally, he has known Vladimir Aleksandrovich for a long time; they went to school together and ran into each other later. Both of them like art.

There is a subject which is especially dear to Ivan Konstantinovich Lisitsa--Lenin. Using inlaid wood mosaics, he painted, or rather made, a portrait of V. I. Lenin and a family portrait of the Ul'yanovs.

9001
CSO: 1801

PROPER PROCEDURES FOR TRAINING AIRCRAFT COMMANDERS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80
pp 6-7

[Article by LtCol N. Kurilo, military pilot first class: "They Trusted the Young Men"]

[Text] The regimental commander summoned his deputies and squadron commanders.

"Our adjacent units," he said, "are holding tactical flying exercises. In order to play them, we have to allocate two detachments. They will have to operate from unfamiliar airfields in an area with few landmarks. The mission is difficult and the preparation time is short. Who will fly?"

It would seem that pilots with many years of professional experience should be allocated to accomplish this mission. However, after weighing and thinking over everything, they decided to send the junior crews. As shown by the results of mission accomplishment, this was not a mistake.

Did the commanders take a risk in trusting the young men with an important job? Speaking frankly, what was the justification for such a bold decision?

During the individual consideration of each crew, the decisive indicator selected was an objective evaluation of the crew members' training levels, their job performance and their ability to recognize the significance of what they would have to do.

In order to be correct in this kind of situation, it is necessary to have a very good knowledge of your subordinates since this is the only approach that will help determine the amount of trust in them. This is very important both in teaching and in training. On numerous occasions, I have heard from certain commanders: I trusted a subordinate with a certain job but he did not live up to my hopes. Moreover, I have encountered such cases myself.

While subsequently thinking about these cases and analyzing them, I involuntarily reached the conclusion that the cause of the failures lay in a shallow knowledge of subordinates' job performance, in the commander's superficial, and at times even frivolous, attitude toward the pilots' moral and psychological development and in a lack of understanding of the importance of trust in interpersonal relationships between the commander and his subordinates. Unwarranted or, as the saying goes, blind trust can cause a lot of problems and, when we are talking about flying, it can lead to bad consequences.

On the other hand, in the hands of a commander-teacher, trust is an effective means of influencing his subordinate's character development, strengthening his faith in his own powers and, this means, stimulating continual improvement in his professional skills. When given in a timely manner and when it is deserved, it inspires the pilot, gives him strength and self-assurance as a person. Consequently, it can be concluded that trust plays an important role in developing the individual, a true citizen of our wonderful country.

Our regiment has a lot of capable fighting airmen who know their business, able, skilled navigators and other specialists, including junior officers who recently arrived in the unit. Naturally, the virtues mentioned above did not come to them by themselves. They are the result of a great deal of work by commanders and political officers at all levels.

After his transition training, military pilot first class Capt V. Lyaskovskiy was assigned to the position of aircraft commander. After getting acquainted with the officer's personal file and other documents which described his service career and professional training, the regimental command element assigned the pilot to LtCol V. Kunin's squadron. In an interview with Lyaskovskiy on the same day, the commander gained a rough idea of his knowledge of specialized subjects. The squadron commander and his deputy--military pilot first class Capt A. Drozdov--drew up a detailed plan for bringing the junior aircraft commander on line. To assist him, they assigned experienced officer-specialists, setting a subject area for each; in addition to the overall plan, they compiled a daily and hourly schedule of individual lessons.

This approach to training made it possible for Lyaskovskiy to successfully pass the officer training program examinations 10 days later and begin flying in his new aircraft. The pilot's training was directed by Capt Drozdov. What is the most instructive thing in this officer's work? First of all, I think we should note his ability to combine high prescribed standards with a friendly attitude toward his comrades and his ability to combine trust with constant supervision of mission accomplishment. Incidentally, true trust does not at all preclude supervision. On the contrary, it either corroborates the justification for trust or shows the lack of justification for it. A lack of supervision always leads to lax discipline and inevitably results in a lack of responsibility.

Drozdov helped Lyaskovskiy understand the subjects and patiently explained obscure points. He has an interesting ability of unexpectedly asking a question to faultlessly determine how deeply and correctly a pilot has mastered a particular section. Nevertheless, Drozdov's primary virtue, in my opinion, is his constant desire to improve his own level of training, expand his academic horizons and improve his teaching skills. This is also what serves as a reliable assurance of his on-the-job authority, especially with subordinates of the same rank and age.

But, isn't it really the case that individual commanders believe that the position itself mandates respect? Authority, in their opinion, is already sanctioned in this manner and there is nothing to be concerned about. however, experience has proven the absurdity and lack of justification for this point of view.

It goes without saying that the position does give the officer certain powers. But, it basically imposes the responsibility for the unit's combat readiness on the commander. And, it is on the job that the commander either strengthens his authority or loses it.

Properly organized and planned lessons and stability in conducting them made it possible for Lyaskovskiy to complete his introductory program within the shortest possible time. When he let his ward go on his first solo flight, Drozdov was a little concerned but he was firmly convinced it would end successfully. When the missile-armed aircraft taxied up to the hardstand after touchdown and the aircraft commander, after shutting down the engines, came down the ladder to the cement, Capt Drozdov heartily congratulated the pilot. And, he immediately began to tell him about the rough spots on his take off and landing so accurately as if he had been sitting next to the pilot in the cockpit. He did not forget to praise him for his efficient and competent actions. And, this is how it was after every flight. The training continued. Now, Capt Lyaskovskiy has an outstanding mastery of all the missile-armed aircraft daytime, all-weather combat applications and he is steadfastly mastering the night flying program.

It should be mentioned that it has become a tradition within the squadrons to carefully track each airman's professional growth. The command element focuses special attention on instructor training for detachment commanders and deputy squadron commanders. Evidently, everybody understands that basic pilot development occurs in the detachment. And, how well the commander trains his subordinates determines, in the final analysis, the combat readiness of the squadron and unit.

The training and development of teachers is not easy. It is not enough that the instructor pilot himself can handle the aircraft in an irreproachable manner. It is very important but it is only one of the instructor's requisite traits. In order to train others, it is necessary to possess a knowledge of the art of teaching and teaching skills, be a competent specialist and a subtle psychologist, be able to elucidate the most difficult sections of the subject in an understandable manner and be able to skillfully demonstrate proper actions in all flying environments. And, all of this must be done calmly and coolly.

There is a popular saying: a good teacher doesn't have any bad students. Consequently, the selection and training of future instructors should be given the most serious attention by using all possible means: courses of instruction, command flights and a synthesis of the best instructor-pilots' experience; demonstrative teaching lessons conducted by experienced unit teachers; academic summaries and lectures prepared by pilots and engineers on the following sections aerodynamics, aircraft design features and tactical performance; and many others. However, the most important thing here is not quantity but quality. These events should be conducted with benefits for the job and not to fill a square.

Capt I. Pletnikov, a detachment commander and military pilot first class, was assigned to prepare a report: "Typical Mistakes on Touchdown: Methods for Preventing and Correcting Them." Being an experienced instructor pilot and competent teacher, he researched the flight recorder data on literally every mistake, compared them to his personal observations and proved the principles of aerodynamics and flight dynamics, supporting each conclusion with graphics and calculations. Therefore, his talk turned out to be extremely interesting and all flying personnel remembered it.

However, an extreme fascination with lectures and summaries will, of course, not be beneficial. It should not be forgotten that the flying personnel's work days are filled to the brim. Therefore, before assigning anybody to talk to the officers, it is necessary to thoroughly think through the topic and justify its functional and practical benefit. We cannot lose sight of the fact that the pilot will not always be able to discuss certain issues himself. Therefore, it is necessary to immediately assign him an assistant from the appropriate specialists.

During flying, all kinds of surprises and critical situations can arise for various reasons. Constant professional alertness is one of the pilot's required traits which will make it possible for him to evaluate the current situation properly and in a timely manner and take accurate and effective actions.

Throughout their entire flying career, the overwhelming majority of pilots will probably not encounter a single inflight equipment malfunction. But, those who have had such an experience know how important it is in an emergency not only to make the correct decision immediately but also to implement it instantaneously. It is no secret that a second can at times decide the fate of both the crew and the aircraft. In order to be the winner during these instants, it is necessary to be ready for them all the time and know what to do and how to do it when an alarm sounds.

After the engines on the aircraft were replaced, military pilot first class Capt V. Bondashev was carrying out a fly-by. When the power plant was tested on the ground and while taxiing along the airfield, there were no deviations from the rated values. During the first half of the take-off roll, there was an abrupt jump in the temperature on one engine. Instantaneously evaluating the situation, the officer made his decision and aborted the take-off. Using all his braking resources, he did not allow the missile-armed aircraft to roll off the runway. He was able to do this because he had an outstanding knowledge of the equipment he was using and he regularly worked on inflight emergencies on the simulator.

It is well known that the quality of the training organization and the quality of training determine its results. Therefore, during combat training, it is necessary to use all the effective means and methods which facilitate the airmen's professional skill enhancement. The tense rhythm of combat training forges a firm character, unbending will power and the ability to attain the assigned goal; it inculcates rich experience for competent, efficient and decisive employment of all the capabilities of the modern, formidable weapons entrusted to us by the homeland.

9001
CSO: 1801

LIVE MISSILE FIRING AGAINST DRONES FROM A DEPLOYMENT AIRFIELD

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 pp 8-9

[Article by Capt Yu. Andronov: "Against a Difficult Tactical Background"]

[Text] The day the squadron party meeting was held, when the issue of the communists' example in fulfilling their socialist objectives was put on the agenda, can be considered as the beginning of our personnel's preparations for the exercises. A lot of practical suggestions for additional development of the competition were made by the airmen. They sharply criticized deficiencies and talked about the unused slack for improving the combat training level and aircraft maintenance.

The atmosphere of mutual, high standards had to be disseminated to the entire group and had to develop an attitude in personnel to fight for outstanding results during the live firing. For this purpose, the meeting planned a number of concrete measures. The primary one was to guarantee a smooth flow of exercise preparations. The communist-leaders developed a special personnel training program. The squadron devoted a lot of attention to publicizing and introducing the best airmen's techniques. Experts in operational career fields--officer pilots B. Divitskiy and S. Peskov and aircraft specialists A. Belousov and V. Basharin--shared their professional secrets with co-workers. In their talks, the combat training leaders talked about the difficulties the airmen could encounter during the exercises. They implemented mutual pilot and specialist familiarization with the special features of the impending operations. This subsequently helped in organizing clear-cut coordination in a highly dynamic environment with a critical shortage of time.

The well organized competition facilitated achievement of high results. The pilots made the maximum-range flight without any deviations from the plan. During the flight, they observed strict radio discipline. The flights accurately covered the route and the complete complement arrived at the other airfield.

The aircraft specialists began their flight preparations in time. The technicians worked with reduced manpower in unaccustomed surroundings. Pilots who had completed the training sessions with time to spare took on some of the aircraft specialists' servicing duties. The aircraft specialists were greatly assisted by the engineers. For example, aircraft radio equipment was preflighted under the leadership of communist N. Zagorodskiy. Due to the engineer's ability to organize the work in a clear-cut fashion, the equipment was prepared swiftly and well.

At the signal from the command post (CP), the fighting airmen went on cockpit alert and, soon afterwards, the fighters soared off from the airfield into the skies. According to the exercise scenario, the drone would take off later. Then, trailing a plume of smoke and fire behind it, it separated from the launcher. Now, it was being flown by a GCI controller. The drone was the "enemy."

The radio-controlled target was near the range. As if by order, the high clouds moved toward the far horizon. The first to pick up the target was military pilot first class, officer V. Suchkov.

The drone control officer carefully tracked the fighter from the CP: he tried to bring the drone out of the attack and issued a command for an abrupt altitude and course change. But, the pilot was alert. The AI radar was firmly locked on the target. An instant later and the missile caught the "enemy." Suchkov had demonstrated superior flying, tactical and weapons skills, an ability to swiftly and competently evaluate the air situation, select the optimum maneuver and accurately operate the AI radar.

It was a good beginning. And, as the commanders and political officers had planned, this beginning was an effective stimulus for the airmen's campaign during the exercises to attain an outstanding result for each flying assignment, superior aircraft and weapons preparations and combat applications and meeting the standards. Subsequent events confirmed that competition is an integral part of combat training. Proper organization and efficient management of competition during the exercises was not an easy job. As a rule, success goes to those units where the commanders and political officers skillfully rely on the party and Komsomol activists and personally stimulate the group to accomplish their combat training missions. In this respect, good examples were set by communists Yu. Khoroshavin, S. Peskov, V. Suchkov and others.

It is necessary to point out that all officers, WO's, NCO's and EM set specific objectives during the exercises. For combat crews, they developed contest rules based on missions and standards, criteria for evaluating their actions and means for publicizing the outstanding performers. Commanders and party activists were continually on top of everything that occurred on the ground and in the air. They supported the leading men's initiative, showed appreciation for their successes and publicized everything instructive in a timely manner.

The fighter returned from its mission. The aircraft technician, SrLt D. Sokol'skiy, was the first to congratulate the pilot on his successful mission accomplishment and he was interested in the aircraft's performance.

"No problems. Thanks," answered the pilot.

No problems! This means all the instruments, units and working parts functioned faultlessly. However, officer Sokol'skiy, as required by procedures, immediately began his post flight inspection. While going from one access hatch to the other, he noticed condensation on the fuel pressure warning unit connection. "A leak?" flashed through his mind. Upon a more thorough inspection of the unit's seal, the technician's supposition proved correct. The defect was immediately corrected. At the runway shack, they published a routine news flash reporting on the high level of professional vigilance displayed by the aircraft technician, SrLt D. Sokol'skiy. The news flash appealed to all aircraft specialists to be on the alert.

While preparing the aircraft for flights, the mechanics supervised by officer V. Khokhlachev performed their work in a precise manner. The commander commended the best mechanic in front of the formation and submitted a recommendation on officer Khokhlachev to the next higher commander for a commendation.

The next drone launch forced the pilots to not only worry but also to carefully analyze their tactical preparation procedures. The GCI controllers made skillful use of the drone's performance; they gave it simultaneous altitude and course maneuvers and conducted various types of jamming. The employment of multiple countermeasures made it difficult even for well-trained fighting airmen.

The CP guided SrLt Ye. Chichigin's flight precisely abaft of the target. But, the pilots acted without initiative, took a long time closing on the target and, when the drone maneuvered prior to launch, the wing man was not able to hit it--he did not have enough of the fighting man's composure or the ability to rapidly operate the AI radar. The CP officers had to guide the pilots to the drone again.

Maj B. Divitskiy, who was trailing behind this flight with his wingmen was in a difficult position. The drone was completing its flight, the intercept line had closed up tight and attack conditions were unfavorable. The target pilot still had not seen this and he was putting the drone into and out of banks.

"Watch closely," the flight leader reminded his pilots. Straining his sight, Divitskiy scrutinized the air space. Suddenly, he noticed a flash in the sun.

"Turning to course 40. Attacking!" briefly reported the pilot.

His wing men persistently followed him. With an unexpected, daring maneuver, Divitskiy outsmarted the target control officer. The latter was not able to guide it out of the fighter's firing pass. The missile, launched at short range, destroyed it. Communist Divitskiy demonstrated superior endurance, self-control and expert command of the aircraft.

But, why didn't Yevgeniy Chichigin's flight totally accomplish its assigned mission?

This was pilot Vasiliy Bukatkin's first practice launch against a radio controlled target. During the preliminary preparations, the commander asked him a question on live missile firing procedures. The answer was accurate. It seemed that the officer had mastered the procedures for completing an attack. But, in the sky, when the pilot faced off with the "enemy," he vacillated.

Upon analyzing the entire flight, the flight leaders established that the error was due to his immense emotional stress. This stress was caused by the unusually strict range environment and the shortage of time. The fact of the matter is that this type of intercept is performed less frequently than other types of exercises.

This example again testifies to the fact that the pilot's psychological attitude, inner readiness to encounter the unexpected and ability to function efficiently in any situation are important conditions for successfully carrying out the flying assignment. For the pilot to possess all these traits, he must carefully study theoretical problems, conduct mission-oriented training in the cockpit and think through his actions for possible changes in the air, ground or weather situation. Combat applications flights always arouse emotional excitement in the fighting airmen and they demand a constant state of readiness for action.

The next drone was flying at low altitude. Officer Veniamin Kochnev was guided to this target. Superior professional skill was demonstrated by the CP OIC, SrLt Aleksey Tyufyakov. He exerted a lot of effort to constantly keep the target and fighter within his view. The clear-cut coordination between the pilot and the CP team brought outstanding results: the missile launched by Kochnev destroyed the drone.

During these exercises, SrLt Erik Delpera, a junior pilot, tried his strength for the first time. Like every fighting man, he had jotted down in his personal objectives: "Accomplish the mission in an outstanding manner." His actions from take-off to touchdown were well thought out. His radio traffic was distinct during each phase of flight. He was cool-headed and he operated the equipment rapidly and accurately. The flight recorder material confirmed his outstanding rating.

During the exercise, the commanders and party activists used the short pauses between sorties for discussions. For example, there happened to be some free time for the aircraft specialists and communist V. Plisyuk assembled them near the aircraft. He gave them reminders on what he considered most important during preparations for the next sortie and praised those who had done a good job. On a regular basis, the party activists published illustrated newspapers and news bulletins for the flights and teams. Maj I. Mel'nik, an aircraft armaments specialist, conducted training sessions with flying personnel and showed them how to handle the fire control equipment in unexpected situations.

As a result, the airmen received an overall outstanding rating during the exercises. However, an analysis revealed that the military work statistics differed for each airman. They are dependent upon experience, skill, intelligence and discipline. The rating charts maintained within the flights were very effective during the exercises. Ratings were given for each detail of a flight. This was a good method for influencing the men; after the exercises, there was a basic critique. The 100's 90's and 80's during the evaluation were not just dry figures; they stood for each exercise participant's actual training.

In evaluating the job of the party and Komsomol activists during the exercises, the unit command elements widely publicized all the deficiencies uncovered. Each person who poorly discharged his responsibilities or who violated flying principles was given his just desserts. They also determined the best performers. This made it possible to establish a group atmosphere of high expectations, develop steps to prevent deficiencies and increase each airman's personal responsibility for the results of his work. The exercise critique was a true school of military training.

The operational job is behind us. The airmen know very well that all results, even the best ones, must be viewed as a stepping stone to achieve even higher statistics. What we consider a success today may no longer satisfy us tomorrow.

9001
CSO: 1801

COMMANDER'S ROLE IN DEVELOPING JUNIOR BOMBER PILOTS DISCUSSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 p 10

[Article by LtCol P. Chernenko: "The Leaders in the Pre-Congress Competition: Bombs Away on the Missile"]

[Text] The day was fading. The sun was slowly sinking over the horizon, gradually turning into a large red ball. The hilltops which formed a semi-circle around the airfield cast long shadows which reached the strip. The pilots were discussing the beauty of the local area, life on base, flying and the young pilots' development.

But, then the air over the airfield was broken by the powerful, thunderous peal of an afterburner. Flying was underway.

A trainer was taking off.

"LtCol Morokhovets is chauffering the junior pilots today," said one of the pilots.

How quickly time flies. It seems just recently that I met SrLt Morokhovets, who was still a young flight leader at that time. The pilot's skill grew from flight to flight. He avidly soaked up everything his commanders taught him and became a first class fighting airman, a bombing expert and a skillful teacher of his subordinates.

I remember that once the airmen had to deliver a night strike against an "enemy" airfield. They selected the best pilots. The formation was headed by LtCol M. Bezmaternykh--an experienced fighting airman.

"It's a difficult mission," he told the pilots. "The airfield is well defended by air defense assets. And, don't forget that we are attacking at night. The target designation crew has been assigned the most difficult part of the mission. It will determine the entire formation's success. This is your assignment, Capt Morokhovets."

During the preparations, the pilot and navigator thoroughly planned their route, split up their search sector and did a phase-by-phase simulation of the mission. A check showed that the crew was ready for the flight.

Morokhovets took off first with the rest of the formation behind him. The "front line" was crossed without any problem.

Now they are in the search area. There was not a single light below. Morokhovets took the aircraft down to the minimum safe altitude. The seconds passed tensely. Time was already running out and the airfield was not visible. But then, against the monotonous dark blue background, an oblong ray of light appeared. Several seconds later, they were able to make out the outlines of the runway.

At the established time, flare bombs hung suspended in the air and, several seconds later, the bombers delivered a precision strike. The mission was accomplished.

There have been a lot of episodes like this in Guards LtCol Morokhovet's flying experience. Two years ago, after graduating from the academy, he arrived in the unit. The new position added to his concerns and problems. Although the majority of the airmen were highly rated pilots, this in no way reduced his responsibility for continuous growth in his subordinates' flying skills.

Nikolay Grigor'yevich's work days are filled to the brim. He has to solve a lot of problems. Why has the junior pilot's progress in combat training suddenly slowed down in the squadron? What was the reason for the mistake made by an experienced aircraft commander? It is necessary to clear things up, set up additional lessons, plan trainer flights with the men making mistakes and prepare talks for party meetings or technical conferences. Is it even possible to list everything that the leader does. But, the most important thing is flying. The sky is his element, his permanent love. He lives for it.

Always and everywhere--at the airfield, during lessons and on his time off--LtCol Morokhovets is cool, mission-oriented and efficient. His co-workers are surprised: where does he get all his energy and strength? He smiles in response: he says service obliges you to be cheerful.

The airmen were ready for the tactical flying exercises. In the classroom, the junior pilots were carefully listening to the commander's instructions. For them, this was a serious test of their combat development. Next to them were experienced fighting airmen, combat applications experts. Youth and experience. They are perfectly integrated and supplement each other. This is probably why the junior officers quickly enter the winged formation.

The readiness check was conducted by LtCol Morokhovets. Not a single error slipped by without his noticing it. He thoroughly prepares for each fight himself and requires the same attitude toward the job from his subordinates.

In evaluating the results, the lieutenant colonel said:

"Now, let's all rest. Tomorrow, we're off!"

In the early morning, the first bomber formation set out on route. It was LtCol Morokhovet's crew's turn. The specialists had finished their last minute sortie preparations and the bombs were uploaded. The pilots climbed up the ladders and took their places in the cockpits.

Morokhovets had no doubts about his navigator. Guards Capt A. Bazhenov had an outstanding knowledge of his business and was always precise in bringing the aircraft out on target. He did not lose his head in the most adverse environment and he did a good job of getting his bearings enroute.

The bomber started its take off roll. Leaving a loud din behind, it shot into the sky like an arrow.

"We have arrived in the area," warned Bazhenov soon after take off.

Nikolay Grigor'yevich looked around. In the distance, there was a characteristic bend in the river which he recognized from the map. Next to it was a small grove. The location was concealed. Perhaps this is where the "enemy" had deployed his missile launchers. But, the navigator is still silent. But, the commander does not press him. He knows that Bazhenov is all eyes.

"Commander! The target is to the left 10...." Morokhovets had already picked it out himself: among the trees, a cigar-shaped missile appeared and immediately disappeared. At the navigator's command, the pilot turned the aircraft and brought it out on the bombing run.

Guards Capt Bazhenov pushed the release button. Fire and smoke covered the target.

...Nikolay Grigor'yevich slowly walked along the aircraft hardstand, exposing his flushed face to the cool wind. The mission was accomplished.

9001
CSO: 1801

USING MORALE ACTIVITIES FOR CITIZENSHIP TRAINING

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 p 12

[Article by AF LtGen A. Lezin: "Political Fighting Men of the 80's]

[Text] Filled to overflowing, the hall was applauding enthusiastically. When the air regiment commander thanked the performers for an interesting and informative evening, the men standing on the stage distinctly responded: "We serve the Soviet Union!" Then, the hall broke out in ovations again. Both the audience in the hall and the artists on the stage were applauding....

The morale detachment's performance was warmly received by the airmen. They invited their guests to come back, asked them to leave the words of their songs and poems and got some advice from them on the repertoire for amateur artists.

The internal information and morale detachment's concerts have been reported in the district newspaper "NA STRAZHE RODINY" and the young people's newspaper SMENA. At the beginning of 1980, in conjunction with the city's actors, the group presented "Leningrad Days" at the VDNKH in Moscow. This was, without a doubt, recognition for the young creative group.

After the publication of the CPSU Central Committee decree "On Additional Improvement in Ideological and Citizenship Training," the communists of the Order of Lenin Leningrad Military District Air Force Political Department recommended the establishment of a morale detachment. Its primary purpose is: instill in airmen, through artistic means, devotion to the socialist homeland, loyalty to the Communist Party's cause and pride in belonging to the Soviet Armed Forces; publicize the revolutionary work and combat traditions of the party and people; help commanders spread the word on the techniques of socialist competition leaders and, using satire as a weapon, fight against traces of the past and deficiencies; provide assistance on methods to clubs and libraries, Lenin reading room councils, people making posters and displays and amateur performers.

Leadership of the detachment was assigned to the Political Department's instructor for large-scale morale activities, LtCol I. Kapuler, who has a great deal of experience in morale and educational activities.

The Order of Lenin Leningrad Military District Air Force History Museum has sketches of front line pilots drawn by the artist A. Yar-Kravchenko during the war; at that time, he was an officer with the Front Air Force Political Department. He told us that he drew pilots who had distinguished themselves in combat based on the commander's recommendation. The drawing was published in the Front newspaper. A press clipping from the newspaper could be sent to friends and relatives. The pilots tried to earn this honor.

They decided to use this unique type of commendation in the morale detachment's activities today. Men who played musical instruments and who were able to draw or write poetry were selected for the detachment. Naturally, at first there were a lot of problems with the repertoire, props, musical instruments, etc. But, through their common efforts, the problems were overcome.

From the detachment's very first days, a lot of attention was focused on the airmen's ideological development. In addition to scheduled lessons, citizenship training was conducted almost every day. Not a single question of interest to the audience was left unanswered. They took tours to Lenin country, to the V. I. Lenin Museum, the Revolution Museum and the Smol'nyy.

The first performance was held during a lesson on Lenin for Komsomol activists. In preparing for it, they carefully selected each item on the program and determined how instructive and clear it was. The day after Comrade L. I. Brezhnev's talk to the voters in Moscow's Bauman Electoral District, excerpts from his speech could already be heard from the stage. A rapid response to major national and foreign events has become the group's tradition.

They also thought about wha' the men in the morale detachment should be called. They are airmen from the Political Department...

So, they are political fighting men. At first, there were doubts about whether this was proper. After all, the detachment only had one communist. They found AUCP (B) Central Committee Politburo resolutions of 27 and 29 June 1941 in documents from the Great Patriotic War. These resolutions committed the kray and oblast party committees to conduct a party mobilization and to send communists with military training and the best Komsomol members to front line units as political fighting men. During the first 3 months of the war alone, 95,000 political fighting men were sent to the front. This meant that Komsomol members were also political fighting men at that time.

After a concert, each performance is analyzed, the audience reaction is evaluated and audience suggestions and questions are discussed. Before the detachment departs for a unit where it will perform, a sort of advanced team is sent out 2-3 days ahead of time. The team consists of poets and artists. Unit political workers help them; they make recommendations on what deficiencies should be criticized and suggest topics for verses. The artists draw portraits of the socialist competition leaders.

The detachment's full complement arrives at the base in a few days. LtCol Kapuler gets acquainted with the performance of the club and library, gives the employees assistance on methods and organizes seminars for the Lenin reading room councils. The political fighting men meet with the base's amateurs, advise them and share their experience with them.

The first performance is put on for the EM. Humour and political satire, war songs and modern songs ring out from the stage. The audience usually holds Pvt K. Naziyev for a long time; he sings songs in the languages of the union republics. Ditties on current topics are very popular. By praising the positive and making fun of deficiencies, they hit the target, as the saying goes, and arouse the audience's approval and laughter.

The second part of the program is the literary and musical composition "Songs of the Fiery Years." The political fighting men read excerpts from the works of V. Mayakovskiy, R. Rozhdestvenskiy and other poets and they sing songs from the Civil and Patriotic wars. The competition leaders are invited on stage, commended for their exemplary service and presented with photocopies of their portraits as a memento. The original picture is kept in the district Air Force History Museum.

The morale detachment also performs for work groups. After receiving his portrait from political fighting man, Pvt S. Devyatov, at an industrial enterprise, A. Veselov, a veteran of the Great Patriotic War said:

"It is good to see that today's young military men are carefully maintaining famous combat traditions and increasing them through their military work."

The political fighting men of the 80's perform at numerous bases, at exercises, at military educational establishments and institutes; their ardent remarks are very popular. But, they do not rest on their laurels. There is a constant search underway for new artistic means, the repertiore is being improved and the performers' skills are being honed. After the detachment leaves, its contact with the base does not end. The deficiencies noted in the concert program and corrected are reported to the Political Department and new subjects are recommended for performances.

Experience with the citizenship training conducted by commanders and political workers in district air units testifies to the fact that the disclosure of the just and humane nature of the party's domestic and foreign policies to the airmen and the development of high morale, fighting efficiency and an active attitude toward life in the men is greatly facilitated by an ardent, convincing party discussion. A lack of ardor does not light the spark in men's minds. Therefore, the Political Department is always concerned about the depth of each performance's content and its pointed, class nature and, at the same time, it tries to completely fill each educational event with a great emotional charge and a profound feeling of confidence in the invincibility of the great Lenin's cause.

9001
CSO: 1801

EXAMPLES OF PROPER TRAINING FOR HELICOPTER CADETS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 p 32

[Article by LtCol G. Chaplygin: "Don't Neglect Small Details"]

[Text] It is correct to say that the instructor pilot's industriousness, ability and enthusiasm for his profession determine the success of cadet training to a great extent. When I asked Maj P. Korchagin, the squadron political officer, to name the most experienced instructor, he thought it over for a second and then confidently responded:

"Capt Markelov. He is a member of the party bureau, a first class senior instructor pilot, good with procedures, a thoughtful teacher and an expert in helicopter sports flying. Moreover, he has a respectible amount of flying time--over 1500 hours."

The flight Capt Markelov serves in has been an outstanding flight for two years now. A lot of the credit for this goes to Yevgeniy Aleksandrovich. His love of the Air Force, conscientiousness and kind, sensitive attitude toward people assist him in training and educating the cadets. The officer and his subordinates maintain the flying documents assiduously and accurately. This is why they are always in tip-top shape. Thorough preparations for each sortie, in-depth knowledge and timely training--these are what success is made of. When evaluating the socialist competition results during their flying shift, Capt Markelov's crew continually comes out in a winning position.

But, the other crews also try and they all take the same tests. So, what is the secret of their success?

"There is really no special secret," Capt Markelov smiles. "It's true that I try to make maximum use of my spare time during take-off. The flight and the deficiencies detected may also be critiqued after the shift ends. But, it is better, in my opinion, to correct subordinates' mistakes during the flight itself so others will not repeat them. Naturally, it is difficult to achieve a situation where each cadet in a formation flies evenly and confidently but we are trying. The cadets are all different; therefore, an individual approach to them is required. No curriculum guidelines, even the most successful ones, can cover everything; they can't anticipate all inflight incidents. Therefore, you are continually looking for novel methods to pep up both training and teaching.

"I will cite an example," Capt Markelov continued. "Cadet Shvetsov had a good knowledge of theory and flying came easy to him. I began to single him out in the group. But, evidently, I overdid it. Shvetsov became conceited and began to look down on his comrades. I tried to influence him but it didn't work right away. Nevertheless, I tried to crack him.

"Once, during a local area flight, there was moderate turbulence and Shvetsov only scored a 90 for the conditions. For anybody else, I would have simply been glad. But, this was a strong cadet flying! I made a comment to him: I said the indicators are 'having a grand time.' He mentioned the turbulence. Then, I decided to work on Shvetsov's self-esteem: keep the indicators on zero. The cadet tried with all his might but he did not rise above four. However, he did not change his mind after this; 'you try to maintain accurate conditions in this turbulence. he said over the intercomm. Naturally, I immediately wanted to put him in his place but I controlled myself.

"I'm taking control," I answered.

I brought all the indicators to zero and did two steep 360 degree turns without any declinations.

After that flight, Shvetsov seemed to change. First, during the critique that same day, he apologized to me and his comrades for his extreme self-confidence. Second, till the end of the flying training, Shvetsov was my assistant in the group. At the end of the training, the entire group passed the flying procedures examinations with the highest grades. For Cadet Shvetsov, this incident was an object lesson for the future. After all, improvement in flying, as is well known, knows no bounds....

In his daily activities with the cadets, Capt Markelov frequently cites examples from our Air Forces heroic past and uses them to instill high morale and fighting efficiency in the young men. He continually reminds the cadets that a pilot must not lose his head in any unexpected situations and must always stay calm and make the proper decisions.

Cadet Yu. Saburov was making some solo circuits. It was totally calm. Suddenly, the flight controller heard his voice:

"This is 45. On the second circuit, I have a hydraulic system malfunction...."

"Report hydraulic system switch position," the query came from the ground.

"Switch on."

"Hydraulic system failure panel?"

"Not lit."

"Check the hydraulic system switch on the instructor-pilot's panel."

"On."

The flight controller's voice was calm, cool and confident. This confidence was transmitted to the cadet. From his conversations with him, the controller understood that the hydraulic system was okay. But, why had the cadet reported the malfunction? What was the problem? To everybody's relief, Saburov correctly evaluated the situation and, taking courage, he owned up to his mistake during the turn. Later, after the flight, he told us that he felt an unusual drag on the stick and took that for a hydraulic system malfunction. The real cause of the drag was that Saburov unintentionally pushed the trim tab button during the turn. He corrected his mistake in time and acted calmly and enterprisingly as he was taught by his instructor.

Communist Markelov was forced to reconsider things by this incident and to conclude that he should conduct helicopter cockpit training, even more thoroughly, focus the cadets' attention on coordinating their movements and on the sequence for cockpit equipment operations and not neglect any small details.

Cadet A. Khomutov already had over 10 hours flying time and had already mastered the most difficult--hovering. But, he did not have confidence in himself. Furthermore, he even had a skeptical attitude--he said nothing worked for him in landing. During a circuit, especially on the final leg, he frequently got flustered. So, on the landing approach during a routine flight, Capt Markelov decided to remove the cadet's inner tension with a distracting hypothetical situation. After taking some unnoticed precautions, he gave him the opportunity to land the helicopter himself. Khomutov did not even believe that he landed the helicopter on his own. They had to repeat the flight. And, the instructor convinced the cadet that he was able to fly.

The essence of the instructor's teaching skills lies in his continual search, improving his flying skills and trusting the trainee's powers and capabilities. This is probably why everybody remembers their first instructor throughout their entire life. After all, he not only gives them their pass to the skies but also teaches them boldness, inculcates industriousness and endurance and molds the future pilot's character.

The instructor pilot's main task is to develop a fighting airman with ideological convictions, one who has faith in the reliability of modern aircraft, who is possessed with a desire for continual professional improvement and who is a steadfast defender of the homeland. Capt Ye. Markelov, a communist and senior instructor pilot, is honorably performing this task.

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TEACHING TACTICS TO CADETS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 p 33

[Article by LtCol O. Basmanov, candidate of military science: "Supportive Outlines and Short Tactical Exercises"]

[Text] The "enemy" made a high-power maneuver. Capt A. Kul'kov carefully followed his actions. During the fight, he had always been in an advantageous position but had not been able to seize the proper instant to attack. Each time, just as the target approached the cross hairs, the "enemy" abruptly got out from under the attack. The fight was obviously drawn out.

But, then, evaluating the situation and keeping the target in view, Capt Kul'kov began a vertical maneuver. The pilot's plan was successful. Fox away!

The ability to swiftly get one's bearings in a fluid air battle and to make skillful use of the aircraft's maneuvering and weapons capabilities is acquired during combat training. Persistence and single-mindedness in learning the secrets of military skills develop tactical thinking, determination, decisiveness, daring, efficiency, creativity and military cunning--the traits which distinguish a true fighting airman. These traits are enhanced as flying experience is acquired. At the same time, experience shows that even the pilot with outstanding flying techniques and an in-depth knowledge of his aircraft's aerodynamics and weapons but without progressive tactical thinking and air combat tactics may lose the battle.

The foundation for a knowledge of tactics is laid at school in the cadet's training program. The higher flying schools' teaching methods on this subject are the same and differ only in individual procedures and in the visual aids which the department's teachers make.

From time immemorial, the lecture has been considered the primary method for presenting the material. To test the cadets' knowledge, seminars and group lessons which require additional self-study of the topic are used. This is why cadets are not always well trained, especially during the first years. In preparing for the seminars, they, as a rule, use only lecture outlines. Naturally, their answers are not known for their depth of thought or breadth of knowledge. That is, the element of creativity and independent thinking is lacking in their study of the subject.

The teaching staff of our school's Tactics Department did a study on how much time the cadets were spending on seminar preparations for various course topics. As a result, they developed and recommended optimal alternatives for the allocation of time on individual preparations. As an experiment, they made up supportive outlines. What are supportive outlines?

They systematize and extract the basic material on the topics in the tactics course. I foresee an admonishment: people will say that this type of help will not introduce the cadets to a creative search or to diverse sources. This admonition may be true but only if a proforma approach is taken toward developing and using these outlines. When problems are accurately formulated in the lectures--problems whose solution requires independent creative work and initiative--they will undoubtedly be of benefit. Furthermore, we must not forget to take an individual approach toward each cadet. It is necessary to intently track their intellectual development, teach them to use the assigned literature, follow periodicals and, if the need arises, immediately give them assistance. As shown by experience, all of this will make it possible to fill the outlines with fresh entries and to energize and enliven the seminars.

For the senior class, the situation is somewhat different. Here, over half the training time is now allocated to group exercises which essentially wind up the training program on tactics and air force employment. These lessons play an important role in preparing future fighting airmen to fly in a tactical environment and they get them accustomed to acting in an adverse combat situation and also to make competent decisions in unexpected situations. To conduct the group exercises, the department made a tactical model with a variable situation and working, electric displays of air defense assets. This training aid makes it possible for the teacher to effectively teach the cadets to act decisively and rapidly in flight and it makes it possible for him to develop their initiative in decision making.

During the group lessons, we try to use different tactical inputs even in similar exercises since monotony leads, as a rule, to a lack of initiative and a routine approach, it deprives the lesson of an emotional touch and, naturally, it does not promote the development of the cadets' creative thinking.

A great deal of space in training is allocated to training films which depict the pilots' actions at the range, their coordination with land forces during exercises, weapons employment and the results of weapons employment. The same purpose is served by slides, filmstrips, graphics and three-dimensional visual aids combined with tape recordings of orders for combat operations while conducting small tactical exercises and group exercises.

In our opinion, a critique of the air arm's independent combat activities in cooperation with land forces during the Great Patriotic War merits special attention. For this purpose, the department has collected a card file of examples of force operations to match all sections of the tactics course curriculum. Experience has proven the undoubtable benefit of this work: the cadets have a deeper knowledge of air force and sister service tactics.

At our school, part of the academic material is set aside for flying training. Moreover, the subject matter of the lessons is selected by the department so that it is integrated to the maximum with the flying instructors' missions to train the junior airmen in combat applications.

During flying training, the cadets do a lot of work on their own. There are advisory lessons and seminars. Since last year, the department has been developing sophomore and junior cadet assignments which are closely tied to their flying training and tactics course subject matter. These assignments force the students to analyze problems of organizing and flying training flights and put them in commander billets, thereby inculcating basic supervisory skills.

Successful mastery of the program and the development of tactical thinking are also facilitated by the cadets' participation in military research which trains them to study the nature of air unit operations in modern air combat and against enemy land forces. The basic type of military research, as is well known, is the abstract. They are prepared by cadets in all classes. Abstract topics become more difficult as the program progresses. For example, during the first years, they are descriptive in nature (for example, the performance of air defense assets, aircraft and other military hardware), while the seniors analyze air force combat operations against various objectives in a tactical environment given by the teacher and considering enemy countermeasures.

This topical organization of the cadets' research activities inculcates skills for working with books on their own, expands their political horizons, develops their tactical thinking and, in the final analysis, promotes an in-depth, creative study of the program's materials. The continual improvement in the forms and methods of teaching tactics strengthens the cadets' level of activity during lessons and this has a positive effect on their progress. The department has not had any cadet failures for several years now and the number of positive responses on our graduates' tactical training has increased.

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TECHNIQUES FOR IMPROVING AIRCRAFT MAINTENANCE DISCUSSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 pp 34-35

[Article by Engr Maj V. Lysenko: "Prompted by the Times"]

[Text] The aircraft equipment status test has always been and remains one of the primary links in preventive maintenance and in guaranteeing trouble-free operation of military systems and units. But, it would be naive to think that it is possible to operate with just the old tried and true methods during check ups and inspections. To the contrary, the swift development of aircraft today decisively demands the introduction of new test methods and equipment.

The time is past for determining the serviceability of a particular unit based only on external appearance. The basis for diagnostics is high precision measurement of parameters and characteristics. This is why today's quality control of aircraft equipment operations is primarily dependent upon strict compliance with the rules of precision measurement and upon the employment of a large number of precision instruments. Airborne flight parameter recorders are specifically becoming more and more important. They are not only used for training flight crews and for analyzing airborne equipment operations but also to search for the causes of aircraft malfunctions. Moreover, airborne and ground test equipment and analog and digital recorders are now firmly entrenched in aircraft maintenance.

The introduction of new test equipment has levied special responsibility on Aircraft Engineering Service (AES) engineers and other specialists. Now as never before, they are required to have an in-depth knowledge of airborne recorder specifications, ground systems test instrument specifications and the rules for using them and for analyzing the data obtained.

Our unit has developed a package of diverse measures to assist AES personnel in skillfully maintaining complex aircraft equipment. For example, they periodically conduct courses of instruction for AES specialists. During one of these courses, we reviewed the problems of analyzing aircraft equipment efficiency with flight recorders, provided a brief description, worked out calibration methods and calibration scheduling methods and developed procedures for interpreting data from the SARPP-12 [automatic flight recorder] and the Tester U-3 system. Tech Svc SrLt M. Tselep, the flight recorder team chief, conducted hands-on lessons on flight recorder interpretation. After this, the specialists took tests. High scores went to Engr Maj V. Popov, Engr Capt S. Sedov, Tech Svc Capt V. Chernyshev and other AES officer supervisors.

The aircraft and engine classroom has a display on flight recorders. The information in the display is used on a daily basis, especially during functional test inspections and check ups. The classroom also has displays on the lay out of the aircraft's hydraulic and fuel systems and the air conditioning system. One of the displays is devoted to the engine structure for a specific type of aircraft. It points out the units and assemblies which the engineer should focus special attention on during his tests. This classroom is decorated with an aircraft inspection flow chart and an engine test chart.

The displays, technical charts, diagrams and various tables are a great assistance to the engineer during his check ups and inspections. They are a supplemental source of the information required for an in-depth scientific analysis of the operations of a particular system or unit on a modern aircraft with its complex automated equipment, radio and electronic systems, navigational systems and powerful weapons.

An effective means of in-depth aircraft equipment status tests are the periodic inspections conducted by AES supervisors in the number and time periods established by equipment maintenance regulations. Our engineers have adopted a creative approach to these inspections. This is precisely why Engr Capt Vikhrov's automated electronic systems and any careless errors in equipment maintenance have been avoided for several years in a row.

Officer Vikhrov is a true expert in his job. He is always concerned about improving methods for the test operations conducted during initial maintenance and preflight operations and on maintenance days. The test inspection and aircraft system status check are also effectively used by this progressive officer to improve the specialists' skills and maintenance standards and to instill efficiency and thoroughness in them. All inspections and check ups have become a good learning and technical training experience for Vikhrov's subordinates.

Before beginning to carry out any task on the aircraft, the specialists attend equipment training and work on procedures for the most difficult operations and test checks and for using the test set. Integrated check up flow charts and programs regulate AES personnel's activities on the aircraft. Moreover, each specialist is naturally required to have superior skills, precision and the ability to stay within rigid deadlines. The engineers devote a great deal of attention to crew selection and training.

The unit has set up an engineer study--a sort of AES headquarters where the officers go after flights, upon completion of initial preparations or after the maintenance day's activities. The study contains various reference materials, books and specifications. The study has been equipped with communications gear and is decorated with initial maintenance and preflight flow charts, aircraft turn-around flow charts and training cards for AES personnel.

The equipment status tests also presume quality control of maintenance and preventive maintenance operations. Otherwise, there would be unavoidable incidents like the one which occurred to WO Yu. Anishchenko. It seemed that the crew's equipment training was over and the maintenance team chief reminded his subordinates on precise compliance with all safety procedures during the weapons inspection. But, none of the responsible officials supervised the warrant officer's preparations to carry out this important assignment. As a result, there was a mistake in aircraft weapons maintenance.

As in any job, setting up a test requires attention, intelligence, a thoughtful analysis and, of course, a strict plan based on an in-depth and comprehensive analysis of each equipment operation. After all, if aircraft equipment is going to operate reliably in the air, AES specialists must conduct an in-depth inspection of it on the ground. An increase in the scope of a test unavoidably results in an increase in total ground preparation time. However, a well-organized and carefully prepared inspection system, a truly scientific approach to this important job and the engineer supervisors' high standards for themselves and their subordinates will make it possible to carry out all test operations in a more precise, rational and time-saving manner. Moreover, it will save man hours and materiel, increase the combat readiness of aircraft equipment and provide a high assurance of its dependability.

While getting vigorous, strict implementation of appropriate instructions and manuals from AES personnel and high standards from specialists, our leading engineers combine this with a sensitive and concerned attitude for their interests and needs. They are trying to develop their subordinates' innovativeness and initiative, develop a critical outlook toward the results of their own military work in them and are concerned about their professional skills.

All of this promotes success in combat training. During the flying shifts, the crews are completely working out the scheduled exercises. Aircraft status is tirelessly followed by AES specialists. An especially good job is being done by Tech Svc Capt F. Lyashenko's subordinates and Engr SrLt V. Tatarinov's subordinates. The commanders, party and Komsomol organizations are skillfully publicizing their advanced techniques. They are showing their constant concern for introducing scientific work organization and for the technicians' and mechanics' professional growth. A lot of attention is focused on a study of the requirements in governing documents and on supervising their execution during aircraft equipment maintenance. This is a condition of success in the campaign to guarantee dependability of military systems on the land and in the air.

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FLYING SAFETY REQUIRES STRICT COMPLIANCE WITH REGULATIONS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 pp 40-41

[Article by AF MajGen D. Bobrov, USSR meritorious military pilot: "In-Depth Knowledge and Strict Compliance"]

[Text] The governing documents which regulate combat training for Air Force personnel, primarily flight organization, execution and support to accurately meet today's requirements, are a concentrated and synthesized reflection of enormous combat experience; the most important propositions of military teaching methods and psychology which are based on the Marxist-Leninist doctrine on war and the army; and the changes which have taken place in our AF equipment and in enhancing its organizational structure.

Experience provides convincing and simple evidence to the fact that an in-depth knowledge of governing documents and strict execution of flying rules are top priority conditions of steady growth in our personnel's combat skills and airborne training standards. This provides a reliable assurance of air unit mission accomplishment without flagrant errors or flying safety hazards. Even in an unexpected or abruptly changing situation or in what are usually considered critical situations, swift action by the pilot or crew of a multi-seat aircraft (helicopter), by the flight controller and control team members and by other airmen in strict compliance with manuals and instructions will guarantee a successful landing and that people's lives and expensive equipment are saved. Here is an example of long standing.

Military pilot second class Capt A. Kokarev once wound up in an extremely difficult situation. But, he did not lose his head; he immediately evaluated the situation, took steps to keep the situation from getting worse and reported his actions and decision to ground control. A competent, rapid job was also done by the flight controller. He analyzed Kokarev's report, approved his plan and did everything possible to facilitate the pilot's mission. So, the fighting airman and the people who helped him from the ground did not lose a second of valuable time. Everybody did their job extremely accurately as required by the instructions in such situations.

Other, similar cases can be cited. They testify to the high morale political, practical and psychological traits and good academic and practical training of the pilots who have been in inflight emergencies. The military airman's discipline played a major role in this area. And, this is completely natural: success is only achieved by those who have an in-depth understanding of flying principles and who implement them in an exceptionally precise manner.

In spite of the diversity and complexity of current missions and the fact that modern aircraft and helicopters are filled with automated systems and electronic equipment, flying safety has been increasing year after year. But, the greatest results in this area are achieved by those military groups where the personnel, and primarily flying personnel, make the maximum effective and efficient use of the remarkable performance characteristics of their aircraft systems and accurately carry out the requirements of governing documents.

Why, for example, did the airmen in communist Guards Maj V. Dubovskiy's squadron make an outstanding showing during the recent tactical flying exercise?

In this unit, each flying day is invariably preceded by thorough, comprehensive preparations. During the preparations, officer Dubovskiy--while organizing a study or review of scheduled exercises, the appropriate provisions of the pilot instructions, methods aids as well as training sessions and while checking up on readiness and other measures--tries to set aside time to remind his subordinates of a particular section in the governing documents related to their specific, routine flying assignment, aircraft servicing or flight support. Flying personnel study the documents in a creative manner, not only remembering the main provisions but also by primarily gaining an in-depth mastery of their substance.

The squadron commander himself strictly complies with flying principles and the requirements of governing documents and he sets a personal example in large and small jobs. Never, not under any circumstances does he violate the established pilot training rules for all types of training, for flying alone and in formation and for combat applications. Pilot first class Guards Maj Dubovskiy also demands the same from all unit supervisors.

The commander regularly reminds the airmen that theirs is a difficult and responsible profession and that the requirement for firm knowledge and continual implementation of the provisions of manuals, instructions, orders and senior commanders' orders on the ground and in the air is dictated by the very nature of flying work and by the military airmen's responsibility for exemplary accomplishment of the missions to defend the soviet homeland and the socialist community. The peaks of combat skills--officer Dubovskiy systematically emphasizes during lessons, flights and daily affairs--are more rapidly attained by those who have the utmost in discipline, efficiency, single-mindedness and persistence and who have in-depth professional knowledge and skillfully use it in practice. In other words, the squadron commander skillfully integrates training and indoctrination and strives for their inseparability and implicit unity.

The commander is provided constant and effective assistance in this important job by the unit political officer, military pilot first class Guards Capt I. Sosnovyy, and by party and Komsomol activists. The issues of the communists' and Komsomol members' leading role in complying with flying principles, developing a healthy atmosphere within the military group, establishing an environment where the slightest violations of military and flying discipline are not tolerated and campaigning for accident-free performance are in the center of their attention. The airmen are trained and stimulated to follow the example of the best and to attain outstanding marks in combat and citizenship training and well-organized socialist competition for a worthy greeting to the 26th CPSU Congress. All of this taken together promotes a situation where squadron pilots are confidently mastering complex aircraft equipment and combat applications. Their firm academic, air and tactical training are based on firm knowledge and undeviating compliance with the requirements of documents regulating flying activities. This is also the source of their high, stable results in daily flying, tactical training and tactical flying exercises.

By relying on assistance from staff officers, support service officers, political officers and the party and Komsomol organizations, the absolute majority of our air force commanders are organizing their jobs as Guards Maj Dubovskiy does. Our leading units' compliance with the requirements of governing documents promotes clear-cut, prescribed order and firm military discipline, widespread publicity on the provisions of combined arms manuals and well-organized training, service and military indoctrination in full compliance with the manuals.

This goal is furthered by special lessons, test-taking and systematic supervision of independent training for flying personnel, engineers, technicians, flight controllers and the airmen supporting them. The foundation for organizing flights and flying without gross deviations from the standards is a healthy, moral group atmosphere which completely precludes low standards, a non-objective or superficial analysis of mistakes or infractions and a lack of timely corrective or disciplinary action against guilty parties.

But, it must be noted that the requirements of the documents regulating flying activities are not being completely and strictly carried out everywhere on a daily basis. In individual air units, there are cases where insufficiently trained pilots are permitted to fly missions. At times, there are violations of the scientifically verified, decades old principle on the sequence for training fighting airmen--from the easy to the difficult--and there are at times violations of the procedures for bringing pilots on line after extended breaks in flying as well as violations of the established rules for correcting mistakes which arise during a particular assignment. No less than other cases of negligence, this has a negative effect on the quality of air training for pilots and crews of multi-seat aircraft and helicopters and it is the cause of deviations which exceed the established rating standards and, at times, it becomes a flying safety hazard.

Here is an example. While taking off in an element, the wingman, Capt V. Kuznetsov, overtook the lead aircraft. This regrettable mistake would not have been a safety hazard if the captain had acted as required by one of the governing documents. However, the pilot violated its provisions. While trying to quickly reform the formation, he began to close on the element leader by banking toward him, without reporting his actions.

Unfortunately, this was not the end of the affair. Without observing his subordinate, the leader banked toward the wingman. As a result, the aircraft closed dangerously on each other. The pilots corrected the situation only after a command from the flight controller. Thus, they committed a series of mistakes, one after the other, like the links in a chain.

Meanwhile, there are clear, simple instructions on how to join-up a formation in situations like this. But, the officers flagrantly violated them and acted stupidly. Consequently, there was an extremely dangerous flying safety hazard.

A detailed critique of this incident made it possible to turn up the fact that Capt Kuznetsov had an extremely poor knowledge of the rules of formation flying. The conclusion is forced upon us. The basic documents, orders and directives of senior OIC's and air force commanders must be studied in a systematic, goal-directed manner and, most importantly, they must be accurately implemented.

V. I. Lenin emphasized: "Urgent military training for a grave war does not require an outburst, appeals and military slogans, but protracted, intense, persistent and disciplined work on a large scale." The currency of these instructions from the founder of the Communist Party and the Soviet nation have increased today and will continue to grow as the military develops. This means that they should not be forgotten by the supervisors who have been assigned to train and educate air unit personnel. No matter what functional responsibilities an officer has in flying, organizing flights or supporting flights, stagnation, the buddy system and rush jobs are intolerable in his activities. Those commanders and OIC's who thoroughly plan a job and persistently implement their plans are the totally correct ones.

Moreover, as evidenced by the experience of leading air units, it is advisable and necessary to make integrated, total use of the entire arsenal of teaching principles and methods of influencing subordinates--from an explanation of flying principles, all the appropriate documents and conviction in the need to accurately implement them to using coersive measures and decisively putting a stop to all infractions. It is completely clear that commanders, OIC's and the party and Komsomol organizations must do their job with due regard for each serviceman's individual features and character traits. An evaluation of any airman's actions must be objective and truly correct. In keeping with the evaluation, it is necessary to establish both the degree of blame for the person who made the mistake and measures for influencing him while drawing a strict distinction between, for example, a lack of discipline and poor training, between conceit, negligence and lack of ability, etc. This is the only way the military group will develop a moral atmosphere which places high standards for one's self and others and a sense of high personal responsibility for accomplishing any assigned mission at the top of the list.

I am firmly convinced that, as in any other area, the commander or senior air force OIC must be the leader in daily, strict execution of the requirements in governing documents. In my opinion, it would be appropriate at this point to recall M. I. Kalinin's words on education. This prominent figure in the Communist Party and Soviet government pointed out that education is one of the most difficult jobs because it is related to the OIC's personal conduct. If the superior calls for discipline and violates it himself, his example will be ineffective. Flight commanders, squadron commanders and other unit commanders have been assigned an especially great responsibility by the party and the people for comprehensive training and the military airmen's successful accomplishment of their duties in total compliance with established flying regulations, comperehensive training of flying personnel, engineers, technicians and specialists in command posts, control groups, communications units, radio-light-equipment support units and logistics units. But, due to their poor knowledge of the documents regulating flying activities and also their lack of sufficient personal experience in organizing, conducting and critiquing the day's (night's) flying, certain officers sometimes make mistakes which entail poor organization and haste and which create flying safety hazards. Individual, junior commanders who were recently advanced to their positions have not yet become true guardians of flying principles while controlling flights or while carrying out assignments as an instructor or solo; they are deficient in their training on flying methods. This naturally lowers their moral right to set the highest possible standards.

In conjunction with the actual prescribed order and discipline, good organization of training, systematic and effective supervision of precise compliance with the provisions of governing documents and preventive measures for all kinds of mistakes, these high standards are, as the saying goes, the cornerstone upon which the foundation is laid for developing the desire in each officer, WO, NCO and EM to act as required, and only as required, by the governing documents, everywhere, always and in all things. Precise compliance with the flying principles reflected in these documents is our duty, our primary responsibility. In this lies the guarantee and reliable assurance for this truly national affair of additional growth in combat skills, increased air unit combat readiness and enhanced flying safety.

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STEPS TO PREVENT COLLISIONS WITH BIRDS DISCUSSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 pp 42-43

[Article by Engr-LtCol V. Bezusov: "The Birds Are Ready To Fly"]

[Text] A unit based in the southern part of the European USSR was planning important flying missions. This was in mid-August. At that time, the summer was distinguished by a very adverse situation with birds and August (based on observations over many years) was the most difficult month for bird avoidance measures.

Taking this into account, the command element planned steps in advance to prevent aircraft collisions with birds. Based on orders from higher headquarters, Sr Engr Ornothologist V. Chuyko made a helicopter flight over his designated area several days before the flights. He detected a large number of various size flocks of large and small birds. He established their height and direction of flight. In addition, Chuyko ascertained that there were a lot of fledglings among the birds.

An analysis of the information obtained by the ornothologist and a comparison with statistical data made it possible to forecast the bird situation and develop necessary recommendations which were immediately transmitted to the unit. While preparing for the flights, they also gave comprehensive, thorough consideration to how to prevent aircraft collisions with birds within the regiment. Guided by his instructions from higher headquarters and using his subordinates' reports on bird safety, the unit commander assigned preliminary missions to the men. He required flying personnel to be very cautious at flying altitudes up to 2000 meters. Radar operators, especially precision approach radar operators, had to be especially careful in tracking flying flocks of birds. In addition, the commander ordered observation of the birds in the airfield area; they used the take off detail and assigned off-duty weather specialists and men from the far and near beacon teams for this.

The chairman of the non-TO bird committee and the regiment's weather officer received their assignments. Based on their recommendations, the commander ordered the additional assignment of flare-equipped guard patrols. They had to scare away birds in the following sectors: the aircraft lift-off area--the end of the runway and the near beacon--the landing area. In addition, a member of the unit hunting group was assigned to the guard. His responsibility was to watch the end of the runway--near beacon sector: this was the spot where flocks of small birds usually intersected the landing course at heights of 20-50 meters. The unit weather officer developed a refined forecast of the bird situation and prepared data for the flying shift to assess it.

They inspected the sound equipment, scarecrows, carbide guns and other equipment to scare birds and got it all completely ready. The radar operators were briefed and they received additional lessons to enhance their skills in detecting and identifying returns from flocks of birds on the PPI scopes. The flight line maintenance company commander and the base commander carefully reinspected the flight strip and the area adjacent to the barracks and the dining halls. Everything that could attract birds was cleared out of these areas.

It is well known that in VFR conditions, the crew on landing approach in the stretch from the far beacon to taxiing off the runway is controlled by the assistant flight controller from the runway control point (if one is designated for this type of flight). This officer must also monitor the birds in his area of responsibility. But, when the situation is especially difficult, he is not always able to prevent an aircraft collision with birds. Taking this fact into account, the commander decided to send an off duty pilot from among the regiment's supervisors to the near beacon with a radio. He was instructed to inform the flight controller of dangerous concentrations and flights of birds near the descent path. If a critical situation arose, this pilot was to take over control of the aircraft on approach.

These steps and the precision work of the servicemen allocated to protect flights against birds had results: in spite of the large number of birds at the airfield and on near and distant approaches to it, all the crews safely completed their missions and landed.

According to statistical data for the last five years, July, August and September account for approximately one-half of the annually occurring aircraft (helicopter) collisions with birds and one-fifth of these occur in August. Sixty percent of the collisions during these months were recorded near airfields while approximately 40 percent occurred on landing. Aircraft collisions on take off and landing were frequently noted at altitudes up to 50 meters and at low aircraft (helicopter) speeds.

When organizing flights and flying at the end of the summer or fall, it is necessary to be especially careful in evaluating and forecasting the bird situation and it is necessary to consider and correct everything that may make it more difficult.

Air and support unit supervisors must continually see to it that the airfield and adjacent territory is kept clean and they must organize clean up details for wild grains, berries, fruits and vegetables. A prominent place in these measures is given to rodent control since they are a source of food for predatory birds. If there is anything on the flying strip, airfield, range or landing site which attracts birds, they may appear there suddenly since they are very mobile and are able to cover large distances in a short period of time.

At the end of summer and fall, it is necessary to be especially aggressive in using means to scare them. At the commander's instructions, flight crews should turn on their landing lights. It is clear that flying personnel must be extremely careful in watching the air space not only on take-off and landing but also while flying along their routes, to zones or to the range.

Unfortunately, individual regiments do not always use resources to scare birds, relying on their purported ineffectiveness. These arguments are absolutely unfounded. This is convincingly proven by the positive experience of the unit where military pilot first class N. Semenov serves. For many years now, they have not had a single aircraft collision with birds although the unit is based at one of the country's most hazardous airfields for birds. The unit's organization of its work in this area has already been discussed in detail by this magazine (AVIATSIYA I KOSMONAVTIKA, No 7, 1977).

The foundation for guaranteeing flying safety against birds is monitoring the developing situation--gathering, processing and analyzing the data obtained. The value of these observations is especially great when fledglings leave the nest and during the fall migration. For this, it is necessary to use estimates from radars which are able to detect flocks of birds and track their routes over a significant area, day and night. It is also important to implement flights around base areas and flights with an ornothologist on board the helicopter. It would be good if specialists from local research establishments and educational institutions took part in these flights.

Experience shows that aircraft (helicopter) collisions with birds can and must be prevented in an adverse bird environment.

9001
CSO: 1801

LOSING ORIENTATION DURING A NIGHT FLIGHT

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 80 pp 46-47

[Article by LtCol I. Onishchenko: "On a Starlit Night"]

[Text] That day, Lt B. Samoylov got home before his wife did. Relaxing in the chair, he did not hear her turn the key in the lock. In fact, he saw her when she had already entered the room.

"You're home already!" Lena exclamed, smiling happily. She sat down on the sofa near him and looked steadily into Boris's eyes. "Do you have a problem?"

"What makes you think that?" Samoylov answered the question with a question and, putting his hand on his wife's shoulder, added: "Everything is okay, as usual...."

In the morning his wife returned to the evening's conversation.

"It still seemed to me that you came home from your night flight somewhat upset. You tossed and turned and sighed for a long time; and, when you went to sleep, you kept trying to make contact with somebody."

"All kinds of things happen in a dream," vaguely answered Boris, reassuring his wife.

...Samoylov actually did not tell Lena about that night flight. Why upset her unnecessarily; she doesn't sleep as it is, waiting his return from the airfield.

Lt Samoylov had a good mastery of night VFR flying. He was already secretly dreaming about IFR flights. Then, suddenly, this happened.

The weather was magnificent over the entire route. The air was uncommonly clear and the visibility of the illuminated reference points was outstanding. The large stars suspended over the cockpit seemingly winked and beckoned amiably: stretch out your arm and any is yours for the taking. The aircraft was flying over the sea and the water reflected the sky.

When Lt Samoylov passed the second turn in his pattern and turned the fighter toward the airfield, the ground trasmitted:

"23, second turn, on time."

"Roger," was the pilot's immediate response. Everything was proceeding well and the officer was gazing admiringly at the lights which stretched off to the left along the shore like a bright ribbon. He was simply enchanted by these deposits of gold which clearly showed through in the distance over the water's dark, mirror-like surface. For awhile Samoylov relaxed his control over the instrument readings. This was his mistake. Glancing down, he saw the stars. Transferring his glance upward, he saw the same picture. The city lights had disappeared somewhere all of a sudden and the junior pilot was alone among the stars....

At first, Samoylov was not alarmed. "I am in a difficult situation," the lieutenant understood. He knew about situations like this from his special reading and from former pilots' stories. He had worked on procedures for recovering normal flight in the trainer simulator and the combat trainer. "Nothing has happened yet," Boris reassured himself. "Use the instrument readings to guide you and everything will be okay."

He focused his attention on the instrument panel. As always, it was lit up with bright numbers and the outlines of readings and pointers. The attitude indicator immediately put Samoylov on guard. It showed a left bank although the pilot did not remember putting the fighter in a turn. But, worst of all was the feeling that clearly told him that the aircraft was in a right bank.

This unique split perception of reality immediately resulted in uncertainty. Samoylov felt his left hand instinctively reach for the stick in an unexpected movement. It seemed to the pilot that he had pushed the stick to the right intending to get out of the left bank when, in fact, he had inadvertently increased it since he had not completed the half roll in descent (this was discovered later).

Then, the lieutenant immediately stopped trusting the instruments. The aircraft was flying at an altitude of several thousand meters when Samoylov suddenly thought that the water was quite near. He knew it was necessary to get over the effect of the illusion at any cost and get out of the emergency situation. But, how? They told him that everybody does it differently.

Meanwhile, the altimeter needle was moving to the left on the dial. Episodes from his brief life flashed clearly through Samoylov's mind. He saw his mother, father, Lena.... A large parade ground and the general, the school commandant giving Boris his brand new lieutenant's shoulder boards. Maj Sviridov, Boris's squadron commander....

Suddenly, the pilot felt a sharp jerk somewhere inside. The visions disappeared immediately and all his accumulated, inner strength now tugged at him, forcing him to act immediately and decisively. Boris woke up from his reverie. He again clearly distinguished the disturbing, luminous indicators. The young officer's entire being was ready to fight for his life and for the aircraft to the end....

As before, the stars surrounded the aircraft on all sides. With his peripheral vision, the pilot saw them dancing around the canopy, speeding up. "The fighter is in a spin," he told himself.

"Look at the instruments," the lieutenant ordered himself. "Just the instruments, nothing else. Operate the controls efficiently and coolly. Remember: you have lost your spatial oreintation." He decisively squeezed the fighter's stick and decelerated. A treacherous inner voice prompted: "You must eject!" However, Boris immediately drove this idea out of his mind.

The aircraft was swiftly plummeting downward. The pilot smoothly but energetically moved the stick and the machine obediently came out of the spin and then out of the turn. Samoylov glanced at the altimeter. He was still descending. During these short, dozens of seconds, the fighter had lost several thousand meters.

The pilot pulled the stick back. A second or two later, the vertical speed indicator froze and then slowly inched upwards toward the zero mark. Somewhat reluctantly, the altitude stopped decreasing.

Finally, the fighter recovered straight and level flight. The load from the moral strain gradually receded. Samoylov pushed the throttle forward and put the aircraft into a climb. Upon reaching his altitude, he tried to be calm and requested airfield approach conditions from the flight controller....

At the hardstand, the lieutenant unhurriedly got out of his aircraft harness and slowly descended the ladder to the ground. Without looking at the technician, he slung in his direction: "Everything's okay!"--and unhurriedly headed for the G-suit shack.

He decided not to make a report on what had happened right away. First, he wanted to assess all the details himself calmly, without any superfluous witnesses. "Besides, whether I like it or not, the flight recorders will tell the story of how I flew the pattern tonight without me," he reasoned.

In the room where the unit pilots were relaxing, Boris momentarily glanced at the schedule. There were no changes for him in it. Samoylov did not pay any attention to the other symbols on the schedule. For some reason, he asked the squadron executive officer about the commander. The XO answered:

"He's in a zone. But, that's all for you today, Samoylov. Formation at 1100 hours."

His comrades were waiting for their missions. Lt Viktor Kartashev, his neighbor, asked:

"Why are you so unhappy? How did you do?"

"Okay," Samoylov answered. Then, lingering slightly at the door: "What a night. A sheer dream! Good luck, Vitya!"

At home, Boris was suddenly overcome by an appauling fatigue. This had never happened to him, even for his most difficult missions. Lena tried to ask him something, but he responded quite inappropriately. In the morning he was not rested when he got up. His hands shook a little and, at times, isolated incidents from the night's flight flashed through his mind. But, with an effort of will, he forced himself to get into the mood for work and to evaluate the situation through the eyes of an outside observer who had already drawn the necessary conclusions. His attitude returned to normal and he even thought during his physical exercises: "I must report it. This flight should be a good lesson for the future." He was no longer upset by the impending, unpleasant conversation with the squadron commander.

9001
CSO: 1801

IMPORTANCE OF GOOD OFFICER TRAINING STRESSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 pp 4-5

[Article by Lt Gen Avn S. Gorelov, Hero of the Soviet Union, honored military pilot of the USSR: "The Making of a Commander"]

[Text] Young replacements arrive in units of the Air Force each year--pilots and navigators, engineers and technicians. What have the military air schools given them? As they take over their assignment are the young officers entirely prepared to perform their duties, to train and indoctrinate subordinates?

The homeland has entrusted their winged defenders with advanced aviation equipment. To prepare them competently to service and operate the modern planes and helicopters and to make skillful use of the combat capabilities designed into them, the schools provide the young men with a thorough understanding of their design and equipment, aerodynamics and tactics--disciplines comprising the foundation for the development of an air fighter. In the unit, however, each of them will deal not only with equipment but also with the men who prepare it for flights and those who fly as members of flight crews. Because of this the future officers, as commanders and indoctrinators of men, are also given a knowledge of military pedagogics and basic methodological skills.

Air force schools regularly receive reports on how well their graduates are doing in the combat units. By analyzing these reports command and the political organs, professors, teachers and flight instructors can evaluate their own work and determine ways to improve the training process. This makes it possible to give the students a better professional background and to improve their military and special training. Many of the reports, however, indicate that the young officers' preparedness to serve as commanders and their skills in working with subordinates still leave something to be desired.

In the daily combat training the commanders and political workers, teachers and flight instructors develop in the young fighting men selfless devotion to the cause of our party and people, a communist world outlook and constant readiness selflessly to defend the socialist homeland. The system of political and indoctrinational work used by the instructors includes numerous effective means and methods of shaping the consciousuess of the future officers. It is very important to employ every possible means to see that our schools turn out officers with a good professional foundation, true patriots and internationalists.

Every teacher and every student should remember, as Army General A. A. Yepishev, chief of the Main Political Directorate of the Soviet Army and Navy, underscored at a conference of leading command and political personnel of the army and navy, that their work "is just as essential to the socialist state as that of the kolkhoz and other workers and the intellectual, that in our nation this work is also a thing of glory, valor and heroism, that it contributes to the security of the world's first socialist state, of the entire socialist commonwealth."

Party and and Komsomol organizations have a great deal to do with the development of communist ideological conviction, great moral maturity, a sense of honor and principles in the cadets. As a rule, those subunits in which they are real centers of political and indoctrinational work have strong military discipline and organization, a climate of seriousness and singleness of purpose, and success is more apparent in the mastery of the theoretical disciplines and in the flight training.

Our experience in training and indoctrinating the cadets at military air schools has demonstrated the fact that the young men adopt the habits, the behavior and even the manner of speech of their commanders, teachers and instructors. This places special demands upon the teachers. Workers at Air Force VUZ's should be very careful of their conduct, critically appraise their every step and action, and control themselves even when it appears that an outburst is inevitable. The personal example has great indoctrinational force, and this force should be fully utilized every hour and every minute, bearing in mind the fact that the students are watching the teacher closely. Here is what Mikhail Ivanovich Kalinin had to say on this matter:

"A teacher's work involves many difficulties, and the responsibility is great. His basic job is to present the subject matter, of course, but the teacher must also remember that the student is imitating him. This is why the teacher's world outlook, his conduct, his life and his attitude toward any occurrence affects all the students in one way or another. Frequently this effect is not noticeable. This does not mean that it is not important, however. We can say with certainty that when a teacher enjoys prestige, the traces of that teacher's influence will remain in certain people throughout their lives. This is why it is important for the teacher to watch himself, to be aware that his behavior and his actions are monitored more closely than those of anyone else in the world.... This should be remembered."

Starting with the very first year, under the supervision of experienced commanders and political workers, teachers and flight instructors, the cadets acquire a basic theoretical knowledge of the social sciences and special disciplines and learn to live and to work at a strictly cadenced pace. It is during this period that the young men begin to form their attitude toward the military service, to develop their world outlook and learn to love their occupation.

The ability to command does not simply appear. It involves a lengthy, daily process, a well-balanced union of theory and practice, constant learning from life, analysis of one's own correct and incorrect actions and those of subordinates, and a critical attitude toward one's decisions. Teaching the future officer to work on his own is an important part of the training. Experience has shown that the commander who is unable to analyze or appraise a situation, to arrive at the proper conclusion and achieve the absolute fulfillment of his decision is simply a relayer of orders originating with superior commanders. One can hardly expect initiative and creativity from such an individual, and in the final analysis--even the execution of orders. The most important thing is first to understand and realize what is required, to think it over thoroughly and then make a decision clearly indicating what the commander wants, how his intent should be implemented and what will be achieved by this. The veteran commander performs the difficult part of an assignment himself and assigns the rest to his assistants, but never failing to monitor its execution strictly and unwaveringly.

Effeciency and control have a special role in the development of a commander's qualities in the future officers. In their daily training the cadets have to perform various assignments and carry out various orders and instructions from superiors, and to follow their advice. And how well an order is carried out depends upon how carefully and thoroughly it is formulated. When a commander assigns an unreasonable task to a subordinate and then reprimands him for not having coped with it, we can say with certainty that this will create nothing but dissatisfaction and internal rebellion. What is more, the teacher's authority suffers, and this has a negative effect upon his relations with the men under him. In order for an order to be carried out unquestioningly, precisely and promptly, as required by regulations, the commander must justify it, see that the subordinate understands his responsibility for the assigned job, determine the best possible way to accomplish the assignment and after its completion has been reported to him, check to see that the job has been properly performed.

Control is organizational work performed by the commander to insure that there is no divergence between the decision and its implementation, and an important element in military discipline. Objective control is not just a matter of checking on the work performed: It also involves providing selfless and effective assistance. And this means assistance, not the petty patronage which creates a lack of initiative, weak will and dependence--qualities with an exceptionally ruinous effect upon the development of the future officers as commanders and upon their professional growth.

Flight instructions must persistently perfect the methods they employ in the flight and commander's training, teach the cadets to work with the guiding documents on their own and develop in them efficient thinking and the ability to orient themselves rapidly in any situation and to perform with originality.

Our flight VUZ's have numerous commanders and flight instructors totally devoted to the job of indoctrinating the future officers. Major A. Voronchikhin, a squadron commander, has proven himself to be a skillful indoctrinator of the young flyers. He carefully studies the abilities of the officers and cadets under him, monitors the observance of flight training methods, and is always ready to help those who need it. And the squadron commander has something to impart to the men. He is a military pilot first class and a master of helicopter sport of the USSR, piloting the rotary-wing aircraft like a master.

Once, when the squadron commander was checking the piloting techniques of cadets in Captain O. Georgiyevskiy's group to certify them to solo on the Mi-8 helicopter, he noticed that the cadets were poor at hovering and landing with the automatic pilot disengaged. Operating an Mi-8 without the automatic pilot differs significantly from flying the Mi-2, on which the young flyers had received their initial training. Each of them had to be assigned several additional orientation flights. This was not the end of the matter, however. This error was typical of all Captain Georgiyevskiy's students. Major Voronchikhin decided to see how the instructor himself flew without the automatic pilot. He found that the pilot was himself making errors, attempting to land the helicopter absolutely vertically and using the trim tabs.

The commander first reminded the instructor that it is not permitted to deviate from the generally accepted training methods and then showed him in the air how best to land the Mi-8 from a hover without the automatic pilot. Among other things, he built up a slight forward speed so that the aircraft advanced 1.5 to 2 meters. The instructor accepted the lesson and eliminated first his own errors and then those of the cadets.

The abilities, the personalities, the propencities and interests of the cadets must be carefully studied, and the training and indoctrinational work structured in accordance with these. This is absolutely essential today, because scientific and technological progress is advancing so rapidly and because it costs so much to train an aviation specialist. Every officer involved in training men must therefore bear in mind the fact that the training of highly skilled personnel is a matter of state importance.

The commanders, political workers, professors, teachers and flight instructors at the Balashov Higher Military Air School for Pilots imeni Chief Marshal of Aviation A. A. Novikov see their tasks in precisely this light. Strict regulation order and discipline have been established at this training institution, and good service, work and recreational facilities have been created there for the men. Smoothly organized combat training and a good training base combined with well-trained professors and instructors have a decisive effect upon the training of the future officers-and-pilots.

It would also be appropriate to mention the fact that personnel at the Balashov VUZ consider it an honor to serve at the school. For example, members of the officers' families can be heard to say that the school is not just the place where their husbands and fathers perform their work and their military service--it is home to them all. And they make every attempt to keep this home clean and comfortable. The students there cannot help being affected by this attitude.

Improvement of the training materials base at Air Force VUZ's is a matter of constant concern to the commanders and political workers, staff officers, instructors and teachers, engineers and technicians. New visual aids, electric displays, functioning mock-ups and stands are added in the classrooms and laboratories each year. The efficiency experts and inventors--people with an inquiring mind and real devotees of modern aviation technology--deserve a great deal of the credit for creating the highly effective training equipment.

Special attention should be given to the training and the growth of the instructors. The instructor's profession is an honored and respected one. It demands a great deal of those involved. The military pedagogue is the perpetuator of progressive communist morality, scientific knowledge and spiritual values. In his daily dealings with the cadets he introduces them to an unknown world, opens up paths for the practical application of theory, and molds their attitude toward the flight profession. How well the future aviators are trained depends directly upon the depth of the instructor's knowledge and his ability to confer this knowledge to the trainees. Consequently, the instructor needs focused, self-preparation not for himself alone.

Command and the political organs at the schools have to constantly monitor the professional growth of the teachers. The subjects of dissertations should be in the field of work of those seeking the degrees; they should deal with current questions of flight work, pedagogics, psychology, and so forth, and the recommendations contained therein should be adopted as part of the training process. It is very important for every scholar to have students capable of thoroughly going into and clarifying the subject dealt with. Everything possible should be done to draw the cadets and students into scientific work, to instill in them a liking for research and develop their ability to think creatively. This is of unquestionable benefit.

By tradition the personnel of Air Force VUZ's greet each party congress with new successes in the combat and political training. Commanders and political workers, staff officers and instructors, engineers and flight instructors, students and cadets participating in the pre-congress socialist competition are fully resolved to greet the 26th CPSU Congress with great achievements in their training and their service, in the strengthening of discipline and organization and the work of improving the training and indoctrinational process.

The Program of the Communist Party of the Soviet Union states that it "will work tirelessly to train the very best representatives of the Soviet people, selflessly devoted to the cause of communism, as commanders, political and technical personnel for the army and navy." This means that everyone entrusted with the training of officers must improve the selection, indoctrination and professional training of the cadets so that after acquiring the necessary knowledge and skills the young people can successfully master the aviation equipment, which is constantly being modernized, train and indoctrinate subordinates and serve as worthy defenders of the Soviet homeland.

11499
CSO: 1801

MOUNTAIN HELICOPTER FLIGHTS: PECULIARITIES NOTED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 pp 8-9

[Article by Lt Col B. Budnikov, military pilot first class: "The Mountains Do Not Excuse Errors"]

[Text] The Mi-8 helicopter was headed toward the mountains. Major V. Rudikov flew the rotary-winged aircraft with confidence. Maintaining the prescribed course, he would calmly glance at the instruments and then at the passing terrain below, occasionally engaging in a brief radio exchange. As the mountains drew nearer their inimitable outlines became clearer by the minute. A sheer rocky wall advanced on the right, while on the left could be seen the steep slope of a mountain with snow-covered peaks. Rudikov's actions became measured and restrained. All his attention was focused upon the terrain. From time to time his glance would slide over the instruments and then return to the front. It was apparent that the pilot was more tense than usual. And this is as it should be. The nearness of mountains automatically weighs upon the consciousness, and one has the urge to soar upward. Yes, one has to become accustomed to the mountains.

The helicopter penetrated further and further into the mountain gorge. Every now and then the pilot would bank the helicopter this way and then that. There were no long straight stretches here as there are over plains, although perhaps on a large-scale map it might appear as a straight line.

The crew members inspected the terrain closely, looking for sites suitable for a landing. This had already become a habit. Furthermore, the calculated flying time was reaching the point at which they should begin looking for the site which was the terminal point of the route. The crew was bringing cargo to this destination.

"Comrade commander, the landing site is to the right. The wind is out of the east," the navigator-pilot reported to Rudikov.

The major had also noticed a small, relatively level area on the slope of a steep hill. Efficiently working the control levers, he began to reduce speed. A little later the rotary-winged aircraft was smoothly touching ground. The first, the difficult part of the mission was completed. Experience, a good knowledge of mountain conditions and excellent piloting techniques had helped.

Flying a helicopter in mountainous terrain is unlike flying anywhere else, and it demands good professional preparedness, stamina and levelheadedness on the part of the airmen. Those crews are successful, who are familiar with the peculiarities of flying in mountains, prepare carefully for such flights, study possible changes in air and weather conditions, and perfect the actions they are to take in special situations. I feel that the experience acquired by our pilots in flying helicopters in mountains will be of interest to airmen operating rotary-winged aircraft.

What does one need to know in order to fly with confidence in the mountains, where the weather changes abruptly, especially in the spring and summer, when dense fogs and clouds can develop unexpectedly, enclosing the peaks and passes and making it difficult to fly a helicopter?

Powerful rising and descending currents make it difficult to control a helicopter and to maintain flight conditions, of course, and create stress on the structure. Cumulus clouds ordinarily indicate the presence of such currents. The vertical speed inside them can reach more than 15 meters per second. In order to insure flight safety, especially on flights involving the crossing of mountain ridges, one should therefore carefully study the weather situation for the hour or hour and a half immediately ahead, and should always consider the maximum flying weight of the aircraft.

Bumpy air is constantly encountered in mountains. One feels it even before approaching the mountains, but it intensifies as one comes nearer the ridge peak. The turbulence is felt earlier when crossing a ridge against the wind than when flying over it with the wind. When there are descending currents one should fly at least 600 meters above a range less than 2,000 meters tall, and at least 1,000 meters when the range is over 2,000 meters tall. Before flying over a ridge or through a pass one should reduce speed to 160 kilometers per hour to keep power in reserve for overcoming any dropping of the helicopter in a descending current or for turning away from the range. If a pilot has been unable to gain a safe altitude he should report this by radio and cross the ridge at an acute angle making it possible to turn rapidly away from peaks should a descending current be encountered.

There is always a buffeting of the helicopter when flying in a gorge at the level of spurs or 1,000-1,500 meters below the peaks. The variometer readings and the speed indicator are unstable in such a situation. Pilots have reported that when flying above sharp mountain ridges and peaks in powerful rising or descending air currents the speed readings sometimes drop to zero because of the extreme downwash at the air pressure head, which is not the true speed. In such a case the pilot focuses upon maintaining the prescribed engine power rating and main rotor speed, and on flying the helicopter visually, checking the gyro horizon periodically.

When preparing to fly into a gorge, its width should be taken into account for determining the flight speeds for the different phases and turn radiuses at maximum authorized bank. The pilot should stick to one side of the gorge (ordinarily the side lighted by the sun) and take advantage of rising currents.

Special caution should be exercised when flying near a slope which is poorly visible because of the sun shining on the cockpit canopy, and in narrowing or dead-end canyons. In all cases a speed should be maintained at which it is possible to make a 180-degree turn. Turning radiuses with a bank of less than 30 degrees for an indicated speed of 80 kilometers per hour, at normal takeoff weight, and a bank of less than 15 degrees at speeds of less than 100 kilometers per hour, are 87.5 and 295 meters respectively. The width of the gorge should therefore be twice the turning radius plus a safety factor of 100 meters.

From the standpoint of piloting, special consideration should be given to takeoff and landing conditions at high-mountain sites. This means that one should know the altitude of the site above sea level, its dimensions, factors complicating the landing approach, obstacles on the approach, the dust situation and the best takeoff direction.

When landing and taking off operation of the control levers should be performed smoothly, earlier and twice as slowly as on airfields in level areas. Otherwise, a difficult situation may arise. Once, for example, when Captain A. Gorskin was taking off from an airfield lying at an altitude of more than 2,000 meters, he took the helicopter into a turn with a bank of 45 degrees and a speed of 100 kilometers per hour. He operated the pitch control furiously during the climb. This resulted in a loss of rotor speed. As a result the helicopter began to drop and came to ground roughly.

When coming in for a landing at a mountain site, terrain permitting, it is a good idea to have a landing path at least 1 or 1 and 1/2 kilometers long. Speed should be reduced somewhat earlier than under ordinary conditions, and this should be done exceptionally smoothly and cautiously. The helicopter should be flying at a speed of 50-60 kilometers per hour when it is 25 meters above the surface. The speed should then be reduced to hovering speed immediately in front of the landing site or above it, if it is large enough. Every effort should be made to avoid descending air currents, which are possible on the lee side of a slope when the wind is stable. On sunny days these may be encountered on shaded slopes as well. In any case one should be prepared immediately to take off for a second approach if the first approach and the landing calculations are incorrect or if the speed is reduced too late. This is the only correct method of rectifying a calculation error.

In the mountains it is very difficult to find a level, dust-free site. They usually contain irregularities and stones. When making the landing and decelerating the aircraft commander therefore keeps the helicopter in a suspended state, smoothly applies the pitch control and monitors the aircraft's behavior with the gyro horizon. In such situations it is a good idea to land the aircraft technician, so that he can determine whether it is possible to reduce pitch control to a minimum. If he finds that the site is level or that its surface irregularities are within the permissible limits as set forth in the crew's manual, then the pitch-control can be disengaged completely.

When landing crosswise to an irregularity in the terrain on swampy or snow-covered ground, it is not recommended that the collective rotor pitch be reduced to the minimum, so that if the helicopter begins to tip over it can be lifted away from the ground.

It is far more difficult than usual to pilot a helicopter when landing on a dusty site or taking off from such. After hovering the helicopter should be lowered in such a way that by the time horizontal visibility deteriorates there is dependable vertical visibility up to the point of touching ground. The tie-down point should not be lost from sight in such situations, and the helicopter's movement over the ground should be monitored through the bottom cockpit windows.

In order to successfully land a helicopter without the use of an air cushion it is important to know the maximum safe load for this type of landing and the air temperature in the area of the landing site. For calculating the helicopter's flying weight personnel of our group use a nomogram and a table containing the computed digital data for specific altitudes and temperatures. These were compiled and duplicated by Lieutenant Colonel V. Sokolov, military pilot first class. It is not difficult to determine the temperature in the landing area. This makes it easy to determine the temperature in the landing area when necessary. To the temperature gradient arrived at one adds 10-15 degrees for the warming which occurs near the ground.

At a dusty site, if its size and the condition of the ground permit, the helicopter can be landed like a plane. In such a case the Mi-8 is landed at a speed of 50-60 kilometers per hour, the pitch-control is immediately disengaged, rotor speed is reduced and the landing-gear wheels are braked.

It is more difficult to take off from a mountain site than to land there, since there must be a power reserve sufficient to maintain the speed necessary to prevent any descent until the transition is made to indirect blow-off from the rotor. In addition, when the site is dusty, whirlwinds are formed as the rotor begins to turn more rapidly, and these reduce visibility and make it difficult to determine the helicopter's relative position after lifting off. In this situation it is best to look through the lower part of the front cockpit window. In addition, it is possible, at minimum pitch and with full throttle to the right, to disperse the dust and then accelerate upwards in order to rapidly leave the dust behind.

If the size of the site permits it is best to perform the take off as though in a plane. In this case one should inspect the ground along the course and then rapidly accelerate the aircraft, while maintaining the direction by compass. Banking is monitored by the gyro horizon. The helicopter emerges from the dust cloud at a speed of 25-30 kilometers per hour.

Flying in mountains is one of the most difficult types of crew training, demanding great piloting skill and good mental conditioning. Such flights are what develop exceptional calmness, good visual estimation and the ability to think clearly and to precisely implement decisions. The flight personnel should be trained in phases, moving from simple to more difficult operations and striving to see that every crew member develops a profound sense of responsibility for the success of the flight. The mountains do not forgive errors. All our airmen know this and prepare thoroughly for every flight.

11499
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SURPRISE FACTOR IN AIR ATTACKS STRESSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 pp 10

[Article by Col P. Lichagin, military sniper-pilot, and Maj A. [illegible]trov: "Air Training and Combat Readiness"]

[Text] A tactical flight exercise was in progress. Captain V. Kozlov's flight was assigned the mission of covering a five-kilometer stretch of road in the "enemy's" defensive depth to prevent a column of motorized infantrymen from moving up to the front line. The airmen spent only a few minutes clarifying the assignment. Now the group was in the air. Under total radio silence and flying at minimum altitude, the fighter-bombers avoided a hypothetical line of contact between the two sides and reached the search area undetected. The leader rapidly identified the column from some characteristic signs and rushed directly into the attack. The first strike was delivered against the two leading vehicles. On the second pass, launched from a chandelle, the airmen set several more targets on fire in the rear of the column. The advance of the motorized infantrymen was halted.

Good tactical skill and excellent flight preparations made it possible for the soldiers of the air to make the surprise attack. The first thing Captain V. Kozlov and his men did by way of preparing for the tactical flight exercise was to thoroughly study the locations of the "enemy's" air defense complexes and the terrain from a map. This helped them lay out the safest flight route and methods of overcoming the air defense system, and to precisely calculate when they should pass over checkpoints and when they reached the target. In addition, just in case the situation should change, the airmen modeled several alternate plans of action and determined the best combat formation and the tactical procedures which would give them the advantage over the "enemy," speed up the air raid and insure surprise.

It should be pointed out that during the advance preparations and training sessions, at a run-through of the flight and in a brief tactical drill the flight commander made it possible for the airmen to demonstrate initiative and creative thinking. The following is just one of the ways this was achieved. It would seem that the "enemy" column could have been attacked at any spot on the five-kilometer stretch of road. However, Senior Lieutenant N. Korovin, leader of the second team of aircraft, proposed that the attack be made when the armored personnel carriers were at a turn in the road. At this point the road began to narrow and passed through an area with natural confining features. This would limit the maneuvering of the vehicles. And two hills would conceal the fighter-bombers as they approached the target. The officer backed up his reasoning with mathematical calculations. The airmen followed his plan. This placed the "enemy" at a disadvantage for a certain period of time with respect to organizing effective counteraction and permitted the attackers to strike the target unexpectedly and return to the airfield without losses.

From the tactical standpoint, then, the achievement of surprise is a matter of carrying out actions not expected by the enemy with the objective of doing the job before the other side has a chance to react, making it impossible to take effective countermeasures in time.

Naturally, the best way to achieve surprise in an air battle is to employ not one but several techniques simultaneously. These might be concealment and selection of the most advantageous time and axis for the attack, or unconventional tactical methods and unusual combat formations. We shall discuss just two of the possibilities.

In a real battle, of course, tactical air operations involve penetrating into the enemy's defensive depth. Surprise is out of the question if one's intentions cannot be concealed from the enemy. An informed enemy will unquestionably take steps to counteract fighter-bombers in an organized manner. Because of this flight secrecy has been and remains an important tactical principle. Modern radar makes difficult to insure secrecy, of course, but it is still possible. For example, when Major V. Andrianov, Captains A. Strelkov and N. Kazakevich, and other airmen prepare for a flight to the range, a reconnaissance flight or combat maneuvering, they meticulously study the capabilities of the "enemy" radar facilities, including their weaknesses, find "dead" zones in the radar field, designate areas for creating interference should it become necessary, and select the best altitude, the safest flight route and the tactical methods to be employed. They demonstrate resourcefulness in the air: In order to approach the target without detection when working on training exercises, they make skillful use of the cloud cover, the sun, terrain features and the speed and maneuvering capabilities of their equipment.

Radar facilities for monitoring air space are an integral part of the air defense system, which has fairly good combat capabilities. Flight concealment helps greatly in overcoming an air defense screen. And those airmen who employ concealment as an effective method of combating the system are doing the right thing. Each time they perform a tactical mission they take into strict account possibilities of counteracting the "enemy" on the route and on the approaches to the targets, maneuver extensively and attempt to make the training situation as realistic as possible.

A training battle is still just that, however. It is difficult to create a realistic situation with real danger. In the training it is therefore simply impossible to avoid certain conditionalities and limitations dictated mainly by flight-safety requirements. This is certainly not to say, however, that leniency is acceptable in the combat training. There is no absolutely no excuse for the tactical background for a flight to the range, aerial reconnaissance or an airborne assault to be limited to the designation of a front line, to be a formality. This contributes nothing to the tactical training of the airborne fighters. On the contrary, it is more likely to make them less active, to blunt their initiative and give rise to routine performance.

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SPEED, SURPRISE ESSENTIAL FOR SUCCESS

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[Article: "Swiftly and With the Element of Surprise"]

[Text] We once had the opportunity to attend tactical flight classes in the squadron in which Captain Yu. Burtsev serves. The combat training task being performed by the helicopter crews consisted in landing a motorized rifle subunit. The rotary-wing aircraft were flying at low altitude, taking advantage of every terrain feature to conceal their flight. A small glade soon appeared--the landing site for the assault force. In a matter of seconds the motorized riflemen were on the ground and speeding toward the object to be captured. They were commanded by Senior Lieutenant Ya. Saval'. The helicopters immediately set out on the return trip.

Subsequent events developed rapidly. The group leader received an unexpected hypothetical problem--to provide fire support from the air for the motorized riflemen's attack in the area of Peschanaya hill. He continued with the group on the same course. The hill was located straight ahead. The airmen could visibly see the antiaircraft gunners preparing to greet them at their position. One would have expected the leader to begin taking evasive action immediately, but this was not the case. It would be difficult to say how many aimed shots the antiaircraft gunners were able to fire. One thing was clear, however: In a real combat situation the commander's lack of initiative could have cost many lives. The helicopters slipped through the dangerous sector, but upon approaching the designated area they found themselves once more in a trap. This time the leader attempted to indicate evasive action, but nothing more.

After the flight we inquired as to why advantage had not been taken of the suitable situation for perfecting skills in penetrating air defenses.

"Evasive action was not part of the assignment," the officer answered. "Conditions were not right for demonstrating initiative."

So that was it! Conditions were not right. Unfortunately, one hears similar answers from other comrades. They attempt to justify their lack of initiative and simplification of the situation by claiming that "conditions were not right," that they must insure flight safety. The laws governing flight work cannot be violated, to be sure. Nor is anyone advocating that an actual combat situation can be fully reproduced on flights for combat practice—conditionalities are inevitable. There is another indisputable fact, however: Simplification in the training, in the tactical preparation of the airborne fighters, creates a situation which can lead to defeat. Tactics consist not simply of theory, but of theory combined with practice.

Surprise constitutes a category of temporarily functioning factors. It remains important until the enemy, taken unaware, is able to mobilize itself and organize active counteraction. This fact accounts for a second, no less important means of achieving surprise—speed of attack. The tactical flight exercise demonstrated the fact that most of the airmen are capable of carrying out their plan, of carrying out accurate attacks against "enemy" targets straight away or employing intricate types of maneuvering, spending minimal time in the process.

The mission assigned to Captan V. Shubaro, a military pilot first class, was described in brief terms—to destroy an "enemy" missile launcher in a designated grid square at 1310 hours. The airborne fighter decided to pass through the air defense system undetected and after arriving in the immediate vicinity of the target to destroy it straight away, approaching on the sunny side under the cover of a hill. And he carried out his tactical plan in precisely this manner. The flight operations officer at the range fixed the time of the attack with a chronometer at 1309.58 hours.

Why is such precision necessary? This question is frequently asked by the airmen, especially the young ones. A modern battle is exceptionally dynamic and involves a variety of tactical techniques and the use of highly advanced weapons and equipment. It is very important to beat the enemy to the punch by at least a few seconds, to forestall his actions and to deprive him of the initiative and of the possibility of inflicting the decisive blow first.

All of this was taken into account in the decision made by the commander who assigned Captain V. Shubaro the mission of destroying the "enemy" launcher before it could be readied for use against our troops. And the time was also precisely calculated. By then the missilemen should have reached the starting line and begun the preparatory operations.

We have long been aware that the time of arrival at the target is exceptionally important. In an offensive battle, for example, when the airmen are providing support for our troops, their operations are calculated down to the second. And this is totally warranted. After all, an air attack against enemy targets is timed to coincide with a certain, specific moment. Motorized infantrymen, let us say, are prepared to attack. In order to support them the fighter-bombers must strike with missiles and guns and drop bombs on the defenders' positions at precisely the designated time. If they reach the target ahead of schedule, they may come under fire from their own artillery. If they arrive later, the motorized riflemen will be in direct contact with the enemy, in which case the airmen will not be able to perform the assigned mission.

It is not an easy task strictly to maintain the flight schedule and reach the target with a second's precision. Its successful accomplishment depends upon many factors: upon the flight training of the airborne fighter and his ability to orient himself visually from the terrain, upon the flight and weather conditions, upon the location of the enemy and the density of the enemy's air defense facilities and finally, upon the correctness of the calculations made by the airmen. These are all links in a single chain. If only one is omitted the final result will be reduced.

We also feel that the following factor should be stressed. A duel with a powerful and technically well-equipped enemy is essentially a phased struggle to gain seconds of time. Naturally, in such a confrontation it is especially important for the airborne fighter to possess such qualities as tactical shrewdness, determination, military cunning and the ability to get from the aircraft everything of which it is capable. The airman who possesses these cannot only forestall the enemy and rob him of the possibility of offering active resistance, but can also gain the seconds so essential for a devastating strike and consequently, for victory.

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PRACTICE RUN OF MISSILE-CARRIER DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 pp 12-13

[Article by Capt A. Podolyan: "Forty Seconds to Launching--Report From Aboard the Aircraft"]

[Text] The solar disk slid beneath the mountain peaks, bringing almost immediate darkness. A cool evening breeze began to blow, but the concrete taxiways still emitted the day's heat. The summer day ended, and the airmen hurried home.

This was my first time in a regiment of long-range missile-carriers. I was to learn about the specific nature of the work performed by the crews of the multi-seat airships. I served in the fighter aviation and it seemed to me that the biggest difference between the flights by our crews and those of the long-range aviation was that the latter were longer. I had to change my opinion, however, as soon as an aircraft taxied onto the parking area. Its size and its powerful armament inspired automatic respect. This was also true of the airfield and its equipment: At least a squadron of fighters could have parked on each concrete "fiver" designated for a single missile-carrier. The fuel trucks were approximately the same shape as those at other airfields, but several times larger. As I looked at all this I recalled shots from a film made in the 1930's about the testing of an aircraft carrier. This modern giant could probably also carry several high speed aircraft.

The unit combat glory room contained models of all the different aircraft ever flown in the regiment. Guards Captain Yu. Khramtsov, one of those who took an active part in setting up the little museum, told about the unit's glorious combat history and its traditions. During the war years its flight personnel made 3,220 combat sorties, and 8 of the pilots and navigators were awarded the great title, "Hero of the Soviet Union." The guardsmen of the Red-Banner regiment are even now adding to the glory attained by the frontliners.

A picture taken during the war years of the regiment's first commander, now Colonel (reserve) Aleksandr Yakovlevich Vavilov, and his flight log are carefully preserved in the museum. The brief notes contained therein provide a chronicle of the awesome war years and a history of the formation and development of the long-range aviation following the war. Today's youth have someone to learn from, someone from whom to take an example. The combat glory room is never empty.

The next morning I was introduced to the crew with which I was to make a long-range flight.

"Captain Losev, Vladislav Aleksandrovich, deputy squadron commander," a short, stocky officer said as he extended his hand. A smile lighted up the amiable-looking, mustachioed face, but the eyes had a stern and searching look.

A stout, broad-shouldered airman standing next to him automatically drew my attention. His face seemed familiar.

"Captain Vavilov, Aleksandr Aleksandrovich, aircraft commander," he said and squeezed my hand strongly.

So this was whose crew I was to fly with! Perhaps it was symbolical that the son serves in the regiment created and commanded by his father during the war. Perhaps there will be a flying dynasty of Vavilovy.

"Captain Chekmezhov, flight navigator," I was told in a thick, rich voice. There was veiled devilment in the officer's eyes.

"And this is Senior Lieutenant Pavlov, our co-navigator," Yevgeniy continued. "You can meet the rest of the crew later. They are already at the parking area."

The preliminary preparations were substantial--like those of the fighter pilots, thorough and detailed. There were some differences, however: a study of weather maps, an analysis of the weather for almost the entire globe, and many other specific details, not one of which could be omitted.

After resting up in the afternoon the crew arrived at the airfield. There was the traditional forming-up at the aircraft. Final instructions were given, and then the brief: "Crew, man positions"!

Guards Warrant Officers Vasiliy Filonenko and Petr Kuz'min climbed rapidly into the tail compartment. Guards Warrant Officer Vladimir Viktorov, senior gunner-radio operator, ran easily up the stepladder. I was assigned the operator's seat.

Literally every "cubic centimeter" of space in the cockpit of a fighter is used, and I could not say that the crew members on a long-range, missile-carrier have a great deal more room at their work stations. The cockpit is jammed with equipment, instruments, assemblies and switches. They are conveniently arranged, however.

The voice of the navigator came through the headsets, briefing the crew on the takeoff time. His occupation has no doubt taught the officer to be exact and punctual. He is the same on the ground or in the sky.

A report to the control tower--and after receiving permission from the flight operations officer the missile-carrier taxied out for the takeoff and took its position on the runway.

"Twenty seconds to takeoff," the navigator reported.

There were looks of concentration on the faces of the crew members. Each one was performing his specific operations at the right time.

The runway looked somewhat strange from the cockpit. In a fighter one ordinarily begins leveling-out at approximately this altitude.

The engines roared as they reached maximum power.

"Take off"!

The multiton machine began the takeoff run with an unexpected lightness.

"Watch the speed...," the navigator would periodically say.

At the precalculated position the missile-carrier lifted off the runway and took off into the evening sky.

"Reduce angle," came the command from Losev.

He was flying as instructor. His entire figure and his hands, which held the control wheel confidently, reflected a kind of inner strength, a preparedness to go to work any time it became necessary.

...We flew for several hours. The darkness which rose up from the ground placed a solid seal over the cockpit windows. The numerous instruments phosphoresced in the semi-darkness, and the tension of flying continued unabated. Somewhere there, next to the brighter line of the horizon, lay the target. The radar beams gripped it tenaciously. The missile-carrier was approaching the launching point.

"Reduce power," a voice said thickly through the earphones, and the conavigator's hand moved to the proper lever.

"Follow the sequence," Chekmezov's voice stopped the lever from being moved. "Strobe range"!

The navigator bent over the viewing hood of the sight, his legs folded back and his hands unerringly operating the instrument control and tuning elements. The outcome of the attack would not depend upon his skill and upon the teamwork of the crew.

"Commander, left—two," Chekmezov requested. "Forty seconds to launching."

The aircraft banked slightly to the left. With an easy motion of the hand the navigator made the adjustment, and then took his eyes off the viewing hood for a second to check the time. The electronic cross hair was clearly visible on the sight screen. It was centered on the target.

Captain Vavilov seemed to merge with the aircraft. With precision movements of the control wheel he held the missile-carrier on the launching course.

I recall how the day before these hands had carefully tossed his little son into the air and how they had delicately held some wild flowers he had picked at the airfield for his wife and daughter. They were now the hands of a fighting man, a soldier of the air. His father had no doubt taken a long-range bomber into the wartime sky with the same degree of concentration. Vavilov junior and senior did look amazingly alike.

The missile-launching equipment had long since been tested and checked, and its engine was operating at maximum power. Now there was a slight jolt, and the aircraft speed began to increase rapidly. The missile's booster engine had engaged, and the commander had to cut back the aircraft engines.

Forty seconds... these forty seconds would flash by if we were attacking the target in a fighter. In this period of time one sometimes has to find the target on the screen, lock on and launch the missiles. And all this while taking evasive action in an air defense zone.

In this case the attack is carried out beyond the range of "enemy" ground-to-air guided missiles, and everything on board the missile-carrier follows an established, regular procedure. The aircraft's launching run is broken down into precise time segments, into which the crew's operations are literally compressed. There is work enough for all. Why then does the time pass so slowly? Perhaps this is due to the exhausting anticipation?

"Twenty second...."

"Crew, prepare for launching!" Vavilov ordered.

"Ten seconds...." Chekmezov gave the countdown.

He flipped back a red clip with his finger and placed it upon the launching button. Tension made me squeeze the tube to the oxygen mask.

"Launch"!

But... nothing was happening. I heard nothing but the clicking of the camera as it photographed the sight screen.

"A simulated launching. Nice going!" Guards Captain Losev praised the crew. "That was well done. Now let's go home."

Vavilov put the missile-carrier into a turn, and Chekmezov leaned to the left as though nudging the multiton airship onto the prescribed course. It was actually funny. But perhaps I was doing the same thing.

Back on the ground I had been told that the trip home seems shorter. We shall see. From lack of conditioning, however, my back was aching and my head kept drooping onto my chest. And we had only completed half the trip.

The talk over the intercom became lively. Vladimir Zhukov briskly reported on the fuel situation and the engines. Lively and active on the ground, he was the same in the air. Vladimir Viktorov informed the commander about a radiogram he had received.

What brought all these people with their different personalities together here at this enormous altitude, in the cockpit of a long-range missile-carrier reminiscent of a scientific laboratory? Their courage? Loyalty? Duty? Yes! All of this! They were communists. They bore enormous responsibility for the fate of the homeland, because the awesome missile-carrier was capable of performing large-scale missions. And these were ordinary people, like those everywhere. Each of them at his station was performing the same sacred duty, shared by all, that of protecting the peaceful labor of our people. And they shared a common quality--presence of mind and the ability to organize their work so as to achieve the maximum result. This was the main thing.

I glanced at my watch. It would soon be daylight. The airship was getting nearer and nearer to the airfield.

A bell rang, signaling the fact that the distant marker had been reached. In a few minutes the missile-carrier would complete the flight. There was the parking area. The engines became silent. The cockpit hatch was thrown back. Sounds of the ground burst into it. I could hear muted voices, as though filtered through cotton. Then I heard the distinct and clear song of a lark. It too seemed to be greeting the crew.

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SQUADRON PARTY-POLITICAL WORK SUMMARIZED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 p 17

[Article by Col A. Milakhin: "Following the Example of Those Who Served on the Front Line"]

[Text] The air squadron commanded by Lieutenant Colonel V. Kamenev received an excellent rating for the tactical flight exercise. Well-organized socialist competition had a great deal to do with this. Recently, when preparations have been under way for the 26th party congress, it has become an even more effective means of indoctrinating the airmen, improving the air training of the crews and strengthening military discipline. No one in the subunit is indifferent or unconcerned about the commitments they have accepted.

The commander and the party activists have created a climate of mutual demandingness, exactingness and comradely mutual assitance in the group. The communists and Komsomol members are in the avant-garde of the participants. They exhibit initiative and take a creative approach to the resolution of many problems pertaining to the combat training.

Lieutenant Colonel V. Kamenev, squadron commander, and Major N. Disyuk, his deputy for political affairs, are capable indoctrinators with good organizing skills and methods. During the daily combat training and the flights they pay close attention to the progress made by their men in their combat training and to the improvement of their flying skill, analyze the successes and the shortcomings of the airmen and their attitude toward the service, and know how to give them support with words and actions at a difficult moment. This is especially important for the young officers, of which there are many in the subunit.

Not a single violation of regulations goes unnoticed by these officers. They are intolerant of carelessness, complacency and apathy. They strive persistently to develop in the airmen the ability to control their actions both during the preparatory period and especially, during the performance of the flight assignments.

Communists Kamenev and Disyuk rely upon the squadron party organization, which is headed by Captain N. Proskuryakov, and focus its efforts upon steadily improving the subunit's combat readiness. They advise the activists at the right time as to where the communists should concentrate their efforts and how best to apply the enthusiasm and initiative characteristic of the Komsomol team.

During the period of preparation for the exercise members of the party bureau analyzed the tactical training of the pilots and navigators and the technical preparation of the aviation specialists. Talks were conducted on operating the aviation equipment in the field and on the observance of safety measures on assignments. Captains of technical service V. Kobysov and Yu. Knyazev and Senior Lieutenant of Technical Service A. Istratov, communists and the best Air Force Engineer Service specialists, conducted special classes, presented briefings, set up a consultation service for the young specialists at the parking area itself, and helped them to prepare the equipment and weapons.

The party activists devoted a great deal of attention to developing in the airmen a sense of great responsibility for the strict and precise observance of instructions and manuals on organizing the flight work. Captain V. Bakhirev, military navigator first class, conducted a class for the young navigators, during which he explained in detail how to ready the equipment and to make the calculations. He demonstrated how to conduct a training drill for the crew members and how to run through the operations coming up on the flight. Bakhirev gave Senior Lieutenant V. Menshchikov a great deal of assistance, sharing with him his expertise in working with the navigational and other equipment on a bombing run. This made it possible for the young navigator to cope successfully with the difficult assignment.

A special section on the "Flight Safety" board was devoted to Captain Bakhirev's know-how. The officer was assigned by the party bureau to deliver reports to his colleagues on the peculiarities of bombing with an auxiliary aiming point, on the comprehensive use of various equipment to insure precision navigation in an area with no reference points, and on the specific aspects of approaching for a landing at unfamiliar airfields.

The commander, the political worker and the party organization are highly demanding of every fighting man when they organize the indoctrination work for the airmen. They regularly receive reports and other information from the communists in charge on the fulfillment of the socialist commitments and the ideological growth of the men. Every aircraft commander and every leader of a servicing group or a party organization must deliver a report for the training period at a group meeting or a section of the party bureau.

Captain N. Trusov, a communist, heads an excellent crew. Violations began to be committed in this collective at one time. Trusov was invited to a bureau session. It should be pointed out that this party measure was a timely one. The discussion was beneficial. Trusov not only heard justified criticism concerning himself but also received many pieces of useful advice and suggestions, especially on matters of improving indoctrinational work with the men and stepping up control over their flight preparations.

At the present time almost 70 percent of the communists in the squadron excel in the combat and political training, and all the aircraft commanders are first-class specialists. Squadron personnel were awarded the honored Lenin Certificate for their successful combat and political training.

The squadron command and its party bureau devote a great deal of attention to improving the ideological conditioning of the personnel and to the development of good morale and political fitness, good combat efficiency and a love for their specialty in the personnel. They make extensive use of the examples of courage and selflessness set by members of the regiment during the Great Patriotic War. Socialist competition has been launched among the personnel for the right to make the honored entry on the successful fulfillment of especially important flight assignments during the exercises in the flight log of Nikolay Sluzhbin, senior regiment political instructor, who repeated Captain N. Gastello's feat during the war years. The right to make this entry has been earned, among others, by the crews of Lieutenant Colonel V. Kamenev, squadron commander, and Major Yu. Matushkin, a detachment commander. Special bulletins, "We Shall Continue and Add to the Traditions of Our Fathers," "Communicating With the Front Line," and others, are regularly issued in the squadron. I can say with certainty that the airmen in the ranks today are adding to the heroic traditions of those frontline airmen and reliably protecting the skies over the homeland with their selfless military work.

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UNIT COMMUNIST, KOMSOMOL ORGANIZATIONS PRAISED

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[Article by Lt Col N. Yakimchuk, doctor of historical sciences: "The Guardsmen's Successes"]

[Text] Socialist competition is well organized in the unit in which Guards Major G. Druzhinin serves as propagandist. A number of interesting undertakings have recently been initiated there. The airmen are competing for the honor to perform a flight assignment for Hero of the Soviet Union, Guards Senior Lieutenant A. Popov, whose name is carried in perpetuity on the personnel roster of one of the air squadrons.

A recent tactical flight exercise was a rigid test for the airmen. It reconfirmed the fact that the fighting efficiency and the combat readiness of every crew measure up to today's requirements. Military sniper-pilots S. Danilin, S. Borisov, P. Slyusarevskiy and others set a personal example for the young soldiers of the air in how to employ various tactical procedures and showed them ways and means of applying these in combat.

Party-political work, which was already efficient and focused, has also been improved. Closely united in their work, the commanders, political workers, party and Komsomol activists motivated the airmen to perform with precision and skill the missions involved in the tactical flight exercise. Guards Lieutenant Colonels S. Pavlenko and V. Koshel', and Guards Major G. Druzhinin, members of the agitation and propaganda team, worked very hard during that period. The assignment results were given and the experience of the outstanding participants was summarized in visual agitation materials. Talks, technical discussions and briefings were conducted for the agitators and the editors of operational news sheets.

The combat and revolutionary traditions of the oldest air regiment in the Soviet Air Forces were skillfully publicized. Issues of the photographic news bulletins "Roll-Call of the Generations" were put out, talks were conducted on the heroic feats performed by Heroes of the Soviet Union produced in the regiment, there was a radio broadcast on "Heroes in the Formation," and other projects were carried out.

Good air training, the culmination of the multifaceted and complex process of training and indoctrinating the airmen, is of course the foundation for the combat readiness of a unit or subunit. The regiment's party organizations are making a significant contribution to the improvement of that process. They thoroughly understand all aspects of the life and training and they make use of various means and methods of party-political work to motivate the airmen to perform the combat training tasks successfully.

There are things to be learned from the performance of the party organization of the air squadron in which Guards Captain A. Zaslavskiy serves as secretary of the party bureau. In this squadron flight safety matters are periodically brought up for discussion at party and Komsomol meetings and in the bureau. They are also discussed in Marxist-Leninist and political classes, in propaganda lectures and visual agitation displays.

At one of the party meetings, for example, there was a discussion on steps to improve the flight training and to make the communists more aware of their responsibility for flight safety. By way of preparing for the meeting the activists, together with the deputy squadron commander for political affairs, held talks with the flight commanders and the group leaders on the flight safety requirements set forth by the CPSU Central Committee, the USSR minister of defense and the commander-in-chief of the Air Forces. The pilots and aviation specialists made recommendations for improving flight preparations and the flights themselves.

The fact that the communists are highly active was demonstrated at the meeting by the severe criticism based on principle, which the report leveled at certain servicemen. The speakers dealt with steps to increase the party members' sense of personal responsibility and with the need for them to set a good example in the combat training and in the efficient use of the time allocated for preparations and for classes in the classrooms, on trainers and in the aircraft cockpits. The decisions adopted at the meeting were based on suggestions made by the communists.

As they deal each day with combat training matters the regimental command, its political workers, party and Komsomol activists devote a great deal of attention to the ideological and political conditioning of the airmen--one of the main factors contributing to the quality performance of the combat training plan and to flight safety. Everything necessary has been done there to make it possible to improve the theoretical background of the officers and warrant officers, soldiers and sergeants, those responsible check constantly on how the students are progressing in their study of the Marxist-Leninist classics and other recommended literature and how the special consultations and talks are conducted, and the experience of the best propagandists is summed up.

The regiment's agitation and propaganda team also devote a great deal of attention to flight safety. The experience of those aviators with no accidents in their flight work and with good flight training performances is effectually disseminated. In their lectures and talks the propagandists tell about the front-runners in the socialist competition and about the best airmen, those who have achieved trouble-free operation of the aircraft equipment on the ground and in the air. Communists G. Druzhinin, I. Makhnev, V. Zabrudskiy, V. Koshel', A. Sitnikov, A. Biryukov and others take an active part in this work.

The daily routine is filled with hard work. Extensive competition is under way in the flights and groups to achieve excellent results from each flight day and each shift. This training year alone the regiment has received two high awards--the distinguished Lenin Certificate honoring the 110th anniversary of the birth of V. I. Lenin and the Challenge Red Banner of the Komsomol Central Committee for excellent results in the combat and political training and for the communist indoctrination of the army youth in the revolutionary, combat and labor traditions of the party and the Soviet people.

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IMPORTANCE OF CRITICISM STRESSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 p 19

[Article by Lt Col E. Sadovenko, military pilot first class: "The Job Benefits From Criticism"]

[Text] I recently attended a party meeting in the detachment commanded by Major F. Bagruzov. This team has more than once won first place in the socialist competition and rightly holds the title of excellent detachment. It would seem to have achieved considerable success. The communists spoke not of their achievements, however, but of unutilized possibilities and reserves, and they outlined specific steps which would make it possible to use the training time with maximum effectiveness to further improve the professional skill of flight and technical personnel. The speakers severely criticized those who tolerate even slight deviations from the regulations governing flight work. There is no question that party demandingness and exactingness underlie the good results achieved by the airmen in their combat and political training.

By way of developing and establishing Leninist standards of party life in the decree "On the State of Criticism and Self-Criticism in the Tambov Party Organization," the CPSU Central Committee underscored the fact that in the contemporary situation, due to the increasing scope and complexity of the tasks involved in the building of communism and the switch to qualitative criteria in all areas of the work, criticism and self-criticism are becoming increasingly important as a means of raising the level of organizational and ideological-indoctrinational work.

The party activists in our subunits are working hard to create in the groups a climate of great demandingness and principle and a strict and critical approach to the job. They try to see to it that the communists' performance is constantly analyzed and objectively appraised and that there is solid support each time a shortcoming is pointed out and each time a good suggestion is made.

I would like to give an example. Some young replacements had joined our regiment. The officers had a fairly good theoretical background, but when they began the flight work some of them committed errors. These ranged from failure to maintain the correct time interval when flying in the "box" to errors in piloting a helicopter on a route. Some of the pilot-navigators were overly constrained in the air, and even slight deviations from the prescribed route would unnerve them.

Gaps in the lieutenants' preparation were discussed at an officers' conference, in the regiment party committee and in the squadron party organization.

When the errors were analyzed in detail, it was concluded that they were in part a result of inadequate control over the preliminary training, sometimes a lack of individual work, and violation of the methods established for introducing the newcomers into the formation. Officers G. Chigintsev, V. Vasilikhin, Yu. Grabarchuk and others were subjected to deserved criticism at one of the party meetings.

The squadron party bureau, which is headed by communist K. Koval'kov, was at one time not making full use of all the possible ways of working with the airmen and was not making adequate preparations for carrying out certain measures, as result of which they were not very effective. The regiment command and members of the party committee studied the workstyle of the squadron party organization, helped the activists, taught them to work with the men, and presented lectures and talks on political and technical subjects. The squadron communists came to see their errors and began devoting greater attention to the youth.

At a party committee meeting it was decided that Major G. Chigintsev, a communist, should report on the lieutenants' navigational training. The activists turned up deficiencies and gave the officers specific advice and recommendations. I should say immediately that the pointed criticism based on principle helped Chigintsev arrive at the correct conclusions. He altered his attitude toward the service and began to devote more focused attention to the navigational training.

Experience has shown us that obstacles are eliminated promptly where the results of the combat and political training and the airmen's attitude toward the service are continuously analyzed. I believe that it is best to assess the state of criticism not from written reports but from all aspects of the group's life. After all, criticism and self-criticism are of a difficult nature, one might say. They form the touchstone upon which every communist is tested with respect to party and moral maturity.

I would like describe one other example in which comradely principle helped a communist to thoroughly understand his error. Captain O. Ibragimov, a pilot-navigator, out of carlessness committed an act which could have led to a flight accident. Command determined the causes and took appropriate steps. A serious discussion of the incident took place at a party meeting. The communists discussed Ibragimov's infraction for what it was and openly expressed all their complaints. The lesson was not wasted. The officer accepted the criticism with the proper attitude, listened to the advice of the veteran pilots and derived the necessary conclusions for himself. O. Ibragimov is now an aircraft commander.

The experience of our party organizations has demonstrated the fact that where there is not only a climate of mutual respect and trust but also a high level of demandingness, the communists develop better as active political fighters for the party and undergo a thorough tempering process. Speaking at a conference of leading command and political personnel of the army and navy, which dealt with the matter of increasing the indoctrinational role of the Soviet Armed Forces, Marshal of the Soviet Union N. Ogarkov underscored the fact that the crucial focus of all the indoctrinational work should consist of a daily effort to strengthen the ideological conditioning and increase the awareness and the political maturity of the fighting men and to instill in them a sense of social responsibility for the nation's security and the defense of socialism. It is important that these characteristics become the deep inner conviction and the active vital stance of every fighting man.

11499
CSO: 1801

MENTAL, PHYSICAL CONDITIONING, FLIGHT TRAINING COMBINED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 pp 28-29

[Article by R. Makarov, candidate of pedagogical sciences, docent: "In a Single, Indivisible Process"]

[Text] Scientific and technological progress in aviation has made the problem of developing psychophysiological stability in the personnel an acute problem. Experience has shown that poor physical and psychological conditioning of the pilots is the prime cause of many gross errors and near-accidents in the air and of premature loss of flight certification.

At the present time an intensive effort is being made to find effective new means, forms and methods of preparing airmen for the job. Extremely little research is being done, however, to develop the theory of pedagogics, psychophysiology and physical conditioning as part of a single pedagogical process. Some interesting studies have been made, for example, which prove the effectiveness of physical conditioning for developing the psychophysiological qualities needed by a pilot and for perfecting the adaptive potentials of the young airmen. A great deal has been done in the area of the psychophysiological screening of young people who wish to become pilots. It is not always possible to apply the effective methods we have found, however, due to the absence of a common theory for organizing the pedagogical process. We still do not have a focused program which organically combines practical and theoretical training and physical conditioning for the development of psychophysiological stability in flight personnel.

It is already difficult to orient oneself in the great mass of analytical data available. The fact is that the flow of experimental data in certain areas of psychophysiology is departing more and more from the integral pedagogical process, making it difficult to coordinate the efforts of the diverse specialists at work on the problem. The individual pedagogical processes involved in various areas of psychophysiological conditioning are themselves still poorly coordinated. The practical training involved in the development of psychophysiological qualities, for example, is not linked with the physical conditioning, which also developes the psychophysiological adaptive group. The physical conditioning, in turn, is inadequately coordinated with the job training.

Research done in recent years in the combining of physical conditioning and practical training have produced encouraging results. Table 1 gives the tasks involved in the psychophysiological training of a pilot in certain exercises during the period of retraining to fly a new type of aircraft.

Table 1

Certain standard flight training exercises	Tasks involved in psychophysiological preparation for actual flights	"Formative capacity" of ground training means		
		Pilot training device (technical equipment)	Physical conditioning	Use of pilot training device plus physical conditioning
Mastering circular flights and flights in the zone	Improvement of:			
	Emotional stability	+	+	+
	Distribution and transfer of attention	+	+	+
	Prediction of situation	+	Partially	+
	Fine motor coordination	+	+	+
	Ability to handle overloads	-	+	+
	Spatial orientation	-	+	+
Flight to service ceiling	Development and improvement of:			
	Resistance to hypoxia	-	+	+
	Ability to breathe under excessive pressure	-	+	+
	Discipline and sense of responsibility	+	+	+
	Apportioning of effort	+	+	+
Flight on a route with a weather minimum for takeoff and a landing at a different airfield	Improvement of:			
	Short-term memory	+	Partially	+
	Operational thinking	+	Partially	+
	Perception when flying by instrument	+	-	+

The table shows that these tasks go considerably beyond the capabilities of the training device. Classes involving these devices must therefore be supplemented with physical conditioning and theoretical training. In this case the development and improvement of resistance to overloads, motion sickness and hypoxia, the ability to breathe under excessive pressure, and a number of other important psychophysiological adaptive abilities can be achieved through general and special physical conditioning. The organizing foundation for acquistion of the actual qualities required to perform the job, however, lies in theoretical training. It is very important for the efforts of the various specialists working toward a common goal to be coordinated with respect to time. The physical conditioning involved is used mainly to develop the required psychophysiological qualities prior to using the training device. These are then polished up in the practical training. Specialized means (special physical training and the technical equipment) should be used in the same phase.

Can the physical conditioning be omitted? Yes, it can. In this case, however, it takes too long to develop the psychophysiological qualities. This is due to the fact that the pilot's system is not conditioned for the effort to master the flying profession which lies ahead. Furthermore, inadequate physical development also reduces the number of years one is able to fly.

The experiments and studies which have been conducted have made it possible to work out a specific procedure for making more effective use of the training equipment for the purpose of developing psychophysiological stability in the pilot. The exercises should be started with the circular flight. In this case the reliability of the pilot's professional skills is determined by his ability to perform additional work in conjunction with the main assignment. His psychophysiological reliability can be determined from the amount of the allotted time leftover for working out hypothetical problems. How is this done?

As an example, during a landing approach the instructor gives the command to take a reading from one of the "unstable" instrument (the vertical speed indicator, for example) every 20 seconds until the aircraft is only 30 meters above the ground. In all phases of the training drills the pilot must process additional information without a deterioration in his main activity. The interval between instrument readings can be altered. The amount of additional work performed in a unit of time without detriment to the main job determines the pilot's progress in the development of his reliability.

When the pilot is learning to fly up to the service ceiling it is beneficial to simulate special failures, to have him monitor the engine's operation, reporting every 40, 30 or 20 seconds, and so forth.

Special attention should be devoted to psychophysiological conditioning during drills on flights over a route, with a weather minimum for takeoff and a landing at a different airfield. After the aircraft reports its estimated time of arrival at the alternate airfield, a hypothetical situation such as the following may be created: "Landing at airfield prohibited." The trainee must consider his fuel reserve and the possibility of reaching another landing site. Or, there could be a simulated failure of the RSBN [radio navigation system of local air navigation], in which case he must calculate the fuel reserve required to reach a third airfield and land--and so forth.

Special studies made during the initial training period have demonstrated the possibility of effectively raising psychophysiological stability from 0.18 to 0.54 in theoretical units. When we calculate the pressure experienced by a pilot during the performance of various flight elements relative to horizontal flight (GP) taken as a unit, we come up with Table 2.

Table 2

Flight elements	"Correlation" in horizontal flight units	Remarks
Horizontal flight	1	
Takeoff	2.75	
Climb	1.7	
Flight along route	1.2	
Banked turn	1.8	
Turn with landing gear extended $\gamma = 15^\circ$	2.0	
The same, $\gamma = 30^\circ$	2.2	
Descent	1.8	
Computation for landing	8.0	10 with instruments turned off
Long-range homing radio marker beacon	6.0	8 with instruments turned off
Landing	10.0	12 with engines turned off and with deviations
Banks with $\gamma = 30^\circ$	2.0	
Banks with $\gamma = 45^\circ$	2.1	
Banks with $\gamma = 60^\circ$	3.0	
Simulated engine failure	7.2	
Computation for landing with simulated engine failure	12.0	

By using the data given in the table in conjunction with the methods described the flight instructor is able not only to appraise with greater accuracy the psychophysiological pressure on the trainees in various sequences of exercises and hypothetical situations, but also to arrive at the best and most efficient combination of psychophysiological and physiological conditioning and flight training, thereby creating the conditions most conducive to the assimilation of the flight training program.

11499
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WORK OF ENGINEER SERVICE LAUDED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 p 32

[Article by Engr-Maj V. Puchkov: "Know Them All and Teach Each One"]

[Text] The flights were over and the rumbling din of the turbines had stopped. The training continued, however: The pilots headed for classrooms, while the Air Force Engineer Service specialists began their post-flight inspection of the aircraft equipment. There was also a lot of work for the unit engineers. They had to go over the performance of the men under them, reveal any defects and thoroughly analyze their causes. Their most important task, however, was to find effective preventive measures to eliminate any defective functioning of the equipment for which Air Force Engineer Service specialists were to blame.

As the engineer responsible for the fighter's armament system on this flight shift, I had decided to thoroughly observe the performance of the group headed by Senior Lieutenant of Technical Service I. Charskiy. This team constantly achieves good results in the training and commits no violations of the regulations governing the operation of the aircraft's complex armament systems. The group has won the socialist competition more than once. The specialists are attempting to greet the 26th CPSU Congress in a fitting manner. They have revised their commitments. They perform all the combat training tasks well and with great enthusiasm and are very strict in evaluating their own performance.

I recall the live firings at the range. Sweltering heat and parched steppe--the specialists, including those under officer Charskiy, worked selflessly and swiftly to insure that all the assignments were performed well. The major test of combat skill was successfully passed--all the targets were shot down.

We have learned from experience that during a period of tactical flight exercises all the airmen are imbued with a sense of responsibility for the common job, direct their spiritual and physical energies toward the accomplishment of the assigned task, perform irreproachably and with good teamwork, and make almost no errors. This is due not only to the great awareness of each specialist but also to the painstaking and thorough preparations made for the assignments.

Preparations for the live firings at the range were conducted according to a special plan. It contained an entire group of the most diverse activities. There was a group of specific areas for conducting training exercises for the flight personnel, engineers and technicians, special inspections were made of all the armament systems, the condition and storage of the ammunition was checked, and it was tested. A great deal of attention was devoted to the observance of safety measures. Engineer-Major V. Yefremov and Captain of Technical Service V. Gaponenko, veteran officers with a good mastery of the methods used to set up such classes, were drawn upon for conducting the technical training exercises.

The specialists in the technical section of the unit methods council, who have repeatedly contributed to the support of the live firings, have made interesting and useful suggestions for operating the aircraft equipment at the range. At the unit commander's suggestion Captains of Technical Service V. Gaponenko and M. Chukhlantsev, Senior Lieutenant of Technical Service S. Lipatov, Warrant Officer B. Ponomarev and others shared their knowledge with the young officers and warrant officers.

A lot of work goes into preparing the aircraft for a flight and into its maintenance and operation on the ground and in the air. This work is well organized in those groups in which there is close contact between the flight personnel and the engineers and technicians, and mutual understanding based upon strict exactingness, great demandingness and concern for the successful performance of the assigned mission.

Prior to leaving for the range our unit's engineers devoted serious attention to the makeup of the groups. A plan-and-schedule was compiled for each maintenance group chief, which covered not only the preparation of his men for the live firings but also the personal preparation of the officers. The individual plans had a prominent place for the organization of socialist competition, the testing of the men on safety measures and the provision of good living conditions and recreational facilities for the personnel, as well as arrangements for meetings with outstanding members of the regiment.

At the range the political workers, party and Komsomol activists used various agitation and propaganda means to tell about the outstanding airmen and make their expertise available to all.

After returning from the firing exercise we carefully analyzed the performance of the Air Force Engineer Service group and summarized the experience of those who excelled. We recall, for example, the skillful work performed with his men by Captain of Technical Service M. Chukhlantsev, a master of combat skills, chief of the periodic servicing group and secretary of the party bureau of the regiment technical maintenance unit. He demonstrated enviable persistence and self-control. This officer is active in rationalization work. Not long before the departure for the range he prepared a panel covering the periodic maintenance jobs for the entire armament complex.

Let us return, however, to the flight shift with which we began our discussion. Unfortunately, violations of safety measures were discovered in the group commanded by Senior Lieutenant I. Charskiy. And it turned out that the group chief himself was to blame. He had become so engrossed in the work being performed on the aircraft equipment that he forgot to set out red flags in front and behind the aircraft. During the technical critique Engineer-Major V. Yefremov thoroughly analyzed the error committed by Senior Lieutenant of Technical Service Charskiy and determined what caused it. It turned out that the officer had decided to perform a large amount of work himself.

Officer Charskiy's error taught us engineers a great deal. Among other things, we began to work more with the group chiefs on an individual basis, to teach them how to organize their work and help them with their planning, not just for a trip to the range, but also for the usual flight shifts.

It is now the rule for the unit engineer as part of his duty periodically to visit the technical critiques and to attend the summing-up of the socialist competition results. As the specialist with the most experience and a good methods expert he helps the group chiefs to conduct training drills and to adopt progressive know-how in the multifaceted training process.

The serious and focused work performed by the engineers with the service group chiefs and the individual and demanding approach they take to each are producing good results. Their technical and pedagogical skill is growing and their work is becoming more effective by the day. And this is a big contribution with respect to the reliable functioning of the aircraft equipment and to flight safety.

11499
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JOB TRAINING OF NEW ENGINEERS DISCUSSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 p 33

[Article by Engr-Lt Col A. Kul'shin: "The Engineer Assumes His Job"]

[Text] That day Engineer-Captain V. Ukhov, regimental engineer for radio electronic equipment, was performing the duties of senior flight engineer. The officer competently and efficiently organized the servicing of the aircraft equipment. The support subunits performed smoothly, thanks to his efficiency. The deputy squadron commanders for IAS [Air Force Engineer Service] promptly reported any trouble to Ukhov and corrected the problems according to his instructions. The senior flight engineer actively assisted the flight operations officer to successfully perform all the scheduled tasks.

Quite recently, though, Ukhov was considered a new specialist. It was not long after he arrived in the regiment before he was authorized to work on his own in the position of service engineer, but the officer accomplished a great deal during that period.

It was sometime before Ukhov was trusted to head the radio electronic equipment service. It is our tradition for an officer to work for a certain period of time in the service group or the periodic maintenance group. He was assigned to the technical maintenance unit, where he worked first as a technician and then as a group chief.

Those of us in charge of the unit IAS and the members of the engineering and technical section of the methods council kept a close eye on his development and studied the young leader's abilities. We saw that from the very first the officer established good and smooth relations with his men, based on regulations. He learned a great deal from those of us with the most experience. At the same time Ukhov brought scientific organization of labor into the specialists' work and applied all his knowledge skillfully on the practical level.

Time passed, and the periodic maintenance group's performance in the socialist competition earned it a leading position in the regiment. Naturally, V. Ukhov's personal qualities--industry, singleness of purpose and persistence--had a great deal to do with this achievement. The fact that Engineer-Major V. Shvachko, the former regimental engineer for radio electronic equipment, and Major of Technical Service Z. Fisher, electrical equipment engineer, took an active part in his development was also a highly important factor. The latter had maintained the aircraft equipment for more than 30 years and decided to train a good replacement for himself before his release into the reserve. The officers were frequently seen together in the methods classrooms and at the parking areas. Officers Fisher and Ukhov attended training sessions for the IAS personnel and various types of ground preparations for flights, and analyzed the organization of the work processes, the distribution of personnel and equipment and operation-by-operation control. The unit engineer discussed the performance of those in charge of the IAS for the squadrons and indicated what would be required of the future regimental service leader with respect to the accomplishment of organizational tasks. He made an effort to develop good methodological skills in the young officer and taught him how to conduct classes for the pilots, technicians and mechanics. The political workers and party activists also helped Ukhov, sharing with him their expertise in organizing party-political work.

I had a purpose for describing in such detail the development of one of our regiment's best engineers. I wanted to illustrate the fact that we always make a great effort to help the newcomers fit into the formation. After all, how well the young specialist progresses in the very beginning has a great deal to do with how well he performs his job as an IAS leader in his field in the future.

As soon as a graduate of a higher military educational institution arrives in the regiment we make a thorough study of his biographical profile. We talk with him and determine his training level, his interests, aptitudes, habits and plans. We try to take his wishes into account. By getting to know the newcomer in this manner the engineers in charge are able immediately to determine what sort of help he will need at first. For example, after we determined that Engineer-Lieutenant A. Derendyayev was erudite, had a fairly good knowledge of the theory and understood the radio equipment, we advised him to begin by studying the operational documents and recommended that he work to acquire skills as a commander and methodological skills.

One of Derendyayev's colleagues, however, who was deficient in certain theoretical matters, was ordered first of all to fill in the gaps in his knowledge of the equipment design. Engineer-Captain S. Nikonov was assigned to help the young officer.

During his on-the-job training, the length of which and the program are defined by the pertinent documents, the young officer gets to know the aircraft equipment and the principles underlying its maintenance and operation for his special field, learns how to plan and a great deal more, both on his own and under the guidance of veteran specialists. After passing his tests he is assigned to a periodic maintenance group for a certain period of on-the-job training. This system of working with the newcomers makes it possible to avoid errors such as those we made when we prepared Engineer-Senior Lieutenant V. Petrov to assume his place in the formation.

He was assigned to a periodic maintenance group and it seemed at first that he had entered into the work with great enthusiasm. After a certain period of time, however, we noticed that his group had begun falling noticeably behind. A special check on the group revealed numerous violations in the handling of technical and technological documents. Even the atmosphere in this small group left something to be desired.

What was the matter? It turned out that Petrov had been content with the knowledge he had already acquired and was not perfecting it, not mastering advanced methods of control and not looking into the fine points of the job, nor seeking help from the chief of the technical maintenance unit. In short, he overestimated his capabilities, in addition to which he was not able to develop the right approach to the men.

Naturally, we helped the young officer to rid himself of the shortcomings. Had we paid attention to and been demanding of Engineer-Senior Lieutenant Petrov earlier, however, it would not have been necessary to spend so much time and effort on his reeducation. The situation has now improved markedly in the group headed by the officer. This incident left its mark, however. Those of us in charge of the unit IAS systematically check to see how the young engineers are doing and determine what sort of difficulties they are experiencing, what sort of success they have achieved and what kind of assistance they need.

In the methods classes conducted in the classrooms and on trainers and during seminars we check not only the engineers' knowledge but also their ability to present the theoretical material to the men under them and their ability to determine the preventive measures necessary to make the aviation equipment more reliable.

Issues pertaining to the engineers' development are also discussed at party meetings. The party activists make extensive use of the practice of hearing reports from the young specialists at sessions of the party bureau on their contribution to the team's combat readiness and to the improvement of flight safety, which unquestionably forces them to become systematically more demanding of themselves and to exercise self-criticism in evaluating their personal performance. All this is helping them to acquire confidence rapidly, to become rated specialists and to greet the 26th CPSU Congress in a fitting manner.

11499
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MAINTENANCE GROUP CRITICIZED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 p 34

[Article by Lt Col I. Onishchenko: "Just What Happened?"]

[Text] Two years ago the periodic maintenance group for the helicopter's radio-electronic equipment was considered to be one of the best in the technical maintenance unit. Now it is only in fourth place in the competition. Just what happened? Why has it slipped back?

"It is entirely a matter of discipline," Engineer-Captain A. Yershov, chief of the technical maintenance unit, explains, "and of carelessness in the performance of their service duties by certain airmen."

This is a serious charge. After all, when the work is evaluated prime importance is attached precisely to the quality of the periodic maintenance work performed on the aircraft equipment and to the discipline of the specialists. And there is good reason for such an approach, because these two factors are closely interrelated and predetermine success or failure. They have clearly become separated recently in this group. Let us get down to the crux of the matter, however.

First, let us discuss discipline. We know that the success of the entire team depends upon the efficiency of each member. And this is precisely what is lacking in this case. Sergeant A. Romanov, a career man, for example, is late to work and deviates from the established procedure for performing periodic maintenence work on a helicopter. Those in charge in the technical maintenance unit worked with him, as did the Komsomol organization, but the indoctrinational work has not yet produced any results. The same can be said of Private Ya. Primenko. He has only a third-class rating and is blatantly indifferent toward the job. Attempts to improve his performance have not yet been successful.

Our efforts to get down to the real cause of the deterioration in discipline in the group led us to the conclusion that Captain of Technical Service I. Lyskovets, the group chief, bears primary responsibility for the situation.

It was not easy even to find Ivan Andreyevich. He had reported in for an hour or so in the morning, told someone that he was going to the warehouse to pick up some spare parts--and then disappeared. We were unable to track him down, neither with numerous telephone calls nor with runners.

"He is a competent specialist," we were told by Engineer-Captain A. Yershov. "He knows a great deal about television sets. This hobby has had something to do with the fact that Lyskovets has begun spending less time indoctrinating the men under him."

The periodic maintenance work suffers wherever discipline and efficiency are weak. This is confirmed by the performance of the group headed by officer Lyskovets.

A pilot once complained about having trouble with his radio set. Upon hearing this the specialist should have made an all-out effort to find and eliminate the problem. This is a law. It was especially true in this case, since the aircraft was turned in for periodic maintenance work following the flight. The pilot's complaint seemed to receive attention in the group. Engineer-Lieutenant A. Korolev, senior group technician, carefully inspected the radio set, tested it and discovered the problem. A tube had burned out in one of the units. The officer ordered Private A. Los', a mechanic, to replace it. The latter, "forgot" to do so, however. The senior group technician, in turn, did not check to see how his order had been carried out. As a result, the helicopter left the technical maintenance unit with a malfunctioning radio set following the periodic maintenance work.

When asked about the matter Captain of Technical Service Lyskovets answered angrily: "And what am I supposed to do when I have men like this working for me"?

He was referring to his subordinates. Nothing extra is required, however. He only has to teach them and to demand that they perform all the operations properly. And, naturally, he should check on their work.

Some members of the technical maintenance unit are inclined to believe that the group has fallen behind because it has a large number of new men. This is a natural process, however. This has always been the case and will continue to be. Incidentally, this subunit has an aktiv, which can always be relied upon given the desire. Warrant officers B. Baryshev and Yu. Belyayev, communists and masters of their specialties, are always ready to support the commander's demands.

The party organization of the technical maintenance unit, however, did nothing more than indifferently record the errors made by the group's aircraft specialists, instead of applying pressure to them. Officer Lyskovets' errors were recently subjected to earnest criticism, to be sure. He has seen his deficiencies and is attempting to remedy the situation. The aircraft specialists have accepted a commitment to earn the title of excellent group this training year. Not only the chiefs, but the party and Komsomol activists and all the specialists as well, have a great deal to do to regain the good name of an outstanding subunit for the radio-electronic equipment group.

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PRAISE FOR INNOVATORS AT MAINTENANCE FACILITY

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 pp 34-35

[Article by Lt Col P. Yefimov: "Innovative Maintenance Men"]

[Text] The aircraft maintenance men jokingly refer to their job as "first aid." The facility does indeed remind one of a hospital: The workers in many of the shops wear snow-white smocks, and everything is clean and orderly. It is not a simple matter to determine where an aircraft "hurts" and to "heal" it. A great deal of knowledge, refined skill, initiative and resourcefulness are needed.

People with an inquiring mind, restless and searching, whose talent and energy are directed toward improving and simplifying the specialists' work, are known as forward-looking. During the past three and a half years alone more than 1,000 rationalization proposals have been submitted at the facility. Around 85 percent of them have been adopted. Their application has saved many tens of thousands of rubles.

Mechanization of the labor-consuming processes and improvement of the technology are the special concern of the innovators. For example, N. Sevast'yanov, an employee of the Soviet Army and deputy chief of an instrument shop, has more than 100 valuable suggestions to his credit. Devices designed by him for running in the machinery following major overhauls have considerably improved the quality of the work and reduced labor outlays.

The work of the aircraft maintenance men has been displayed at the Central Exhibit of Scientific and Technological Creativity of the Youth conducted by the Exhibition of Achievements of the National Economy of the USSR. I. Madzari was awarded a silver medal by the Exhibition of Achievements of the National Economy of the USSR, V. Shcherbin was awarded a bronze medal, and A. Belyuzhenko a certificate and badge. The instruments they devised for predicting the life of relays and resistors and for determining the condition of transistors are extensively used not only at the facility but far beyond its walls.

Some of the improvements have been accepted as inventions. An example of this is an instrument designed by a group of specialists headed by Engineer-Major L. Borovkov, former deputy chief engineer at the facility, for pinpointing defects in radio-electronic circuits. The functioning of the instrument is based on the indication of heat emitted by elements of the circuit as it operates. The instrument feeler gage is held near the circuit, and a heat chart is compiled from the indicator readings. By comparing it with a standard it is possible to determine the cause of a breakdown or a deviation from rated performance. This unique instrument is capable of detecting local overheating and overheating in hard-to-reach spots because of the special design of the feeler gage, which has a coverage area of no more than five square millimeters.

The rationalizers include people of various ages. The veterans try to involve the youth in the creative work and to impart to the latter their experience and knowledge. The baton of innovation is thus passed on from one generation to the next.

The aircraft maintenance facility will be 70 years old next year. It has come a long way and established some glorious traditions. It was the subject of V. I. Lenin's well-known resolution concerning allocations for the repair and production of aircraft: "I would urgently request that everything possible be done to accelerate this matter."

Extensive socialist competition for a fitting reception for the 26th CPSU Congress is now under way at the facility. The communists, people of bold imagination paving the way toward new equipment and new technology, are at the forefront in each shop, in each section.

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GOOD AIRFIELD MAINTENANCE COMMENDED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 p 35

[Article by Maj M. Kamyshnikov: "After a Sandstorm"]

[Text] Dawn was approaching. The outlines of the airfield buildings were becoming more clearly defined by the minute against the background of the mountain spurs. A brisk breeze was cooling things off, and one breathed with ease. There was still considerable time remaining before the flights, but Captains N. Durnev and I. Kondratenko and Senior Lieutenant L. Kharchenko, company commanders, had already arrived at the flight line and checked the condition of the runway, the taxiways, the aircraft parking areas and the support facilities. It was clear why the officers had arrived at such an early hour. A sandstorm of unprecedented force had recently passed through the area, and the hurricane-like wind had lifted enormous clouds of sand, dust and dry grass from the steppe, parched by the blistering heat, and dumped them down upon the airfield, the aircraft parking areas and other installations.

The storm created a great deal of work for the IAS [Air Force Engineer Service] personnel and for members of the separate airfield technical maintenance battalion. The airmen countered the raging elements with skill, good organization, stamina and courage. They gave the job all that they had, helping each other demonstrating resourcefulness and ability. Senior Lieutenant L. Kharchenko's men were especially outstanding. Together with IAS specialists they rapidly and thoroughly covered the aircraft, the motor transport and other flight support equipment.

The men worked all night without a wink of sleep to ready the runway, the taxiways and the aircraft parking areas for the next flight shift, and removed the sand drifts, although this was not easy: A strong wind suddenly began blowing from the mountains, and once again sand drifted onto the runway. No one complained about the hard work, however. The fighting men displayed good training and successfully withstood the onslaught by the elements. By taking skillful advantage of the modern technical equipment they readied the runway for use by the time indicated.

The regimental commander carefully inspected the runway before the aircraft left on a weather reconnaissance mission. He was satisfied and thanked the airmen for mopping up after the storm.

The subunit headed by Senior Lieutenant L. Kharchenko is among the front-runners in many areas of the combat and political training and is ahead in the pre-congress competition. It has a reputation for consistently achieving good results. More than 65 percent of the fighting men have mastered one or two related specialties.

Senior Lieutenant L. Kharchenko devotes a great deal of attention to the socialist competition. The outstanding officer strives constantly to see that it affects the entire training process, that its influence is felt in the classes, drills and exercises. He carefully thinks over each commitment with his men and then compiles a plan for accomplishing it. Experience has proven the efficacy of such an approach. When the plan is drawn up in specific form, it is easier to organize and monitor its implementation. Not just the state of equipment, but also the skill of the specialists, their organization and singleness of purpose are taken into account when the competition results are summed up.

The main focuses in the competition among the officers are the improvement of methodological skill, renewal of the training materials base and a search for reserves for improving the training process. As a result, the classes and drills in this company have become considerably more effective in recent months, the personnel do not make errors, and they try to conserve fuel, lubricants and engine-life.

In classes at the motor vehicle pool and in a trainer officer L. Kharchenko and the platoon commanders attempt to condition the men not to lose their presence of mind and to perform with assurance when preparing the airfield for flights in adverse weather. They persistently develop a high level of technical sophistication in the personnel and demand the strict observance of safety measures.

The subunit experts have developed some unique devices, which help to maintain the airfield in a constant state of combat readiness even during the most difficult time of the year. The company's rationalizers prepared an attachment for a tractor, for example, which makes it possible to clear sand and snow from large as well as small areas. This greatly reduces the amount of time required to ready the airfield for flights.

Summer is over. Personnel of the outstanding subunit have prepared the airfield for winter operations. They have replaced damaged slabs on the runway, filled in cracks, checked and cleaned the drainage ditches, restored the airfield markings, readied the equipment and repaired the maintenance and parking area for the motor transport equipment and other machinery. The airfield workers are serious about maintaining it in a constant state of readiness.

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LOSS OF TALENTED OFFICER REGRETTED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 9, Sep 80 pp 44-45

[Article by Warrant Officer V. Vysotin, military pilot third class: "And He Punished... Himself"]

[Text] Engineer-Lieutenant Colonel S. Korovin had not been home in 15 years. Since graduating from the military school he had served in the Far East, the Trans-Caucasus, the Trans-Baykal and abroad. He just never seemed to be able to visit the place of his birth, the place where he had started out in life. Even when he was on leave, he could not get away to go back home. For one thing, his parents no longer lived there, and on the other hand--there had just never been a good opportunity. All of a sudden, however, he decided to go home. And Sergey Yur'yevich did not put the trip off, but purchased a train ticket on his next leave and two days later he was in the main oblast city. The aircraft on the local airline to Orlovka, which by that time had become a large rayon center, would not depart until evening, and Korovin decided to walk around the city to make the time pass faster.

It was Saturday. The streets, filled with people and vehicles, seemed crowded. The welcoming, open doors of the stores and the brilliant displays of goods lured the people inside. Near a trade center Sergey Yur'yevich merged with a solid stream of humanity flowing through the wide doors of a department store bearing the poetic name "Lada."

In the human whirlpool Korovin accidentally bumped into a corpulent man about the same age as he. Mumbling some sort of apology, the latter swiftly bent over, picked up Korovin's hat, which had been knocked off his head, and handed it to him. He was about to hurry off on his way, but he took a close look at Sergey Yur'yevich's face and exclaimed:

"Sergey! Is it you"?

Korovin was startled. He took the stranger in with a puzzled look.

"Don't you recognize me"?

"Slavka! Borsukhin?" Korovin exclaimed with joy in his voice.

As soon as he recognized the former schoolmate, he gave his friend a stout hug. The latter could not suppress his excitement as they made their way out of the crowd: "Just imagine! Meeting like this, after so many years."

"Let's go to my place. My family is in the country. We can talk there, and recall old times," Borsukhin chattered as he summoned a taxi. He could not stop talking during the taxi ride: "Where do you live now? Are you still in the service or in the reserve? What is your job? Tell me about it"!

"There is not much to tell. My job is so-so," Sergey Yur'yevich said, his eyes gaily sparkling. "I am a lieutenant colonel. A division engineer. I'm completing my work for a Candidate's degree. In general, things are not dull. You know what kind of equipment we now have in the forces. It prevents one from becoming stagnant."

"So, I don't know," Borsukhin said, his face suddenly darkening.

"How come?" Korovin asked, casting a searching look at the other.

"I got out of the army," Borsukhin said gloomily after a brief silence, without looking at his comrade. "I found a job which was not so hectic."

Suddenly both of them felt somehow uncomfortable. Conversation ceased. And Borsukhin was not the same again until after he had let the taxi go.

"How are Liza and the kids?" he asked as they were going up in the elevator.

"Liza runs a kindergarten. My daughter is studying at an institute, and my son is in the army. He is a missileman in the North."

"My son has applied for admission to an institute. Today's young people have a strange attitude toward serving in the army. It doesn't get them anywhere, they say."

"And why did you give it up so easily?" Korovin wanted to ask, but he restrained himself.

Sergey Yur'yevich was surprised when they entered the apartment. Tapestries and expensive ornaments decorated the walls, and crystal sparkled in a sideboard. There were elegant porcelain knickknacks, and a magnificent chandelier sparkled from the ceiling in all the colors of the rainbow. There were books--mainly on electrical engineering.

"We live as well as the others," Borsukhin said with self-satisfaction. "It would be hard to equal your lifestyle, of course."

"Why, I don't have even a third of this."

"All right. Have a seat. You turn on the television set and I will run down to the delicatessen." With that, Borsukhin disappeared out the door.

Sergey Yur'yevich cautiously sank into the overstuffed chair. Memories flooded over him without any effort....

As boys he and Slavka had been the best of friends. They had lived in adjacent houses, their vegetable gardens bordering upon each other. There had even been a special gate, through which they had visited each other. Serezhka took pride in their friendship. Slavka was a year older and he had the reputation at school as a boy with a head on his shoulders, with lots of talent. It was no problem for him to repair any receiver, to install the wiring for lighting, to repair a magnetic recorder. He read a lot of books on radio and electricity.

Neighbors and acquaintances were amazed at Slavka's outstanding abilities and predicted that he would be a scientist. After graduating from a 10-year school, however, Borsukhin submitted his application to a military school. A year later he arrived in Orlovka in the uniform of a cadet. And Sergey Korovin's life was not the same. When he graduated from school he unhesitatingly submitted his application to the same school. When he graduated Lieutenant Korovin was assigned to Borsukhin's unit. Stanislav was in charge of a periodic maintenance group for radio-electronic equipment. Sergey ended up serving under Stanislav, and this made him indescribably happy.

Borsukhin was his model in all things. When he began any sort of job, Sergey would try to perform it with the same skill and flair exhibited by his friend. This is perhaps the very reason why he studied and learned so thoroughly the methods for working with the radio equipment, and, we also need to say, why he was so successful.

Borsukhin's office was right in the radio laboratory. The only desk in the room was always covered with blueprints and books. Stanislav could spend hours performing his magic over some new improvement scheme or rationalization proposal. Any time things became difficult he was the one who was asked to clear up the problem.

Borsukhin kept pretty much to himself in the group. The other members did not resent him, however: In the first place, he was in charge, and in the second place, talent always inspires automatic respect. As time went by Korovin began to notice that Borsukhin tried to be the only subject of conversation and to have people notice only him. Nonetheless, he had many friends.

"What should he do? Should he perhaps talk to his comrade about this?" Sergey thought to himself. The more he thought, however, the more he realized that he himself was not totally indifferent to his friend's fame. He also would have liked to hear it said of him when some difficult problem arose: "We can't do it without Korovin." And so he said nothing.

Time went by. Lieutenant Korovin acquired experience. One day he was summoned to headquarters, where he was asked whether he planned to study any more and it was recommended that he enter the academy. He had to find out what his friend Sergey thought.

"Schooling is a good thing," the latter told him.

"And what about you? Do you plan to go back to school"?

"Why should I?" Borsukhin said, shrugging his shoulders. "I'm better than anyone else with just my school diploma."

Korovin recalls how shocked he was at those words. He still remained silent, however. At any rate, at that point Stanislav flipped some blueprints lying on the desk and said:

"Let's think about this."

For a long time they discussed a device for testing the electronic equipment on a missile-carrier in the field. Once again, as always, Korovin could not help being amazed at his comrade's sharp mind.

They spent two years working on this device. It was almost too much for Sergey, but he managed to perform his duties, to take correspondence courses from the academy and to be involved in community affairs. Borsukhin, on the other hand, devoted himself entirely to the invention. This was made easier by the fact that command provided him with everything he needed to complete the project as rapidly as possible.

A field laboratory mounted on a truck was displayed at the military district's exhibition of efficiency experts and inventors. Borsukhin and Korovin were awarded certificates. When the excitement created by the event died down Korovin was unexpectedly awarded a prize consisting of a sizable sum of money.

"There must be some mistake," Sergey thought. "Borsukhin should receive the prize." He went to see the commander:

"I was not alone in this project. Senior Lieutenant Borsukhin deserves most of the credit."

"It's good for you to think about your comrade," the commander said. "But I talked with the chief of the political section and the engineers and we decided to give the prize to you."

Korovin did not even like to think about what happened after that. Borsukhin became sullen. He no longer talked to Sergey. He would not even speak when they met. It was learned that he had gone to command and tried to prove that Korovin had been awarded the prize unfairly, that he deserved most of the credit for the rationalization project. It was explained to him that those who had made the decision had not only considered credit for the rationalization project itself, but had also taken into account community action and the performance of the service job.

"Then you don't need me here," he snapped angrily. A month later he submitted his request for transfer to a different unit.

"Why did he leave the army?" Sergey Yur'yevich thought. "Did his wounded ego actually get the best of his intellect and rise above his sense of duty and honor? Maybe he was right after all. Maybe command did not look into the matter properly and did not give him due credit for his work. Be that as it may, success went to Borsukhin's head, and he broke at the first test of his self-esteem."

...Korovin's thoughts were disrupted by the slamming of a door. Borsukhin entered the room loaded with bottles.

"Where are you working now?" Sergey Yur'yevich asked when they had sat down at the table.

"I have a pretty good job," Borsukhin answered cheerfully as he lighted a cigarette. "I work at a place called the 'Household Applicance Repair Shop.' Sometimes I earn a little extra at home. In this age of electronics specialists like me are needed like..."—and he gestured with his hand to illustrate. "I have earned enough to buy all this," he said, sweeping the room with his eyes. "You know yourself that there is a shortage of radio parts, especially imported ones."

"Why should I receive a gift? I also want to live like a human being," Borsukhin answered defiantly.

Korovin stared at his former friend. The latter withstood the stare and without a word began picking at his plate with a fork.

"Why did you leave the army?" Sergey Yur'yevich asked after a long silence.

Borsukhin had a gloomy and rigid look on his face. His eyes, now cold and heavy, peered out from beneath thick, jutting brows. At last, with a sort of desperate determination, he began to speak:

"You know, Sergey, I have changed my mind about a lot of things recently. At first I thought that they could not do without me. Conflicts developed in the unit to which I was transferred. I made no new friends there. To be honest, I didn't want any. The service became unbearable for me. I decided to leave the army. I wanted to prove something to someone. I really needed to prove something to myself, however--the fact that it is not good to be too self-sufficient. Even so, I have to say that I was not mistreated or ignored in the service... rather the opposite. And this constant desire to be better than anyone else, to stand out in the crowd, became like a cancer. It is a terrible feeling, Sergey. Believe me, it is.

"I did not continue my schooling. I couldn't see why a person with my abilities needed an engineer's diploma. What would it earn me?" Borsukhin said with a cheerless laugh. "You see all this? I have everything. It is nothing but window-dressing, however. There is no happiness... no friends. There are only drinking buddies, 'businessmen'—a nasty crowd...disgusting. I've had enough! I need to get out of this mire before it's too late. I have actually punished no one but myself."

The time had flown by. It was time to leave.

"Don't forget to write, and come to see me," Borsukhin said as he squeezed Korovin's hand tightly. "After all, we've been friends since childhood, and this is very important to me."

A strange feeling possessed Sergey Yur'yevich on the way to the airport. On the one hand, he felt sorry for his friend, and on the other it was hard to accept the fact that the man had parted so easily with the young officer, had not helped him to make a success of it.

"We are still not getting to know our men well enough," the lieutenant colonel thought. "Preoccupied with our jobs, we sometimes overlook the individual under the press of our daily affairs. And our people are all different. Each of them needs a personal approach. But I will write Borsukhin. I will write him, without fail...."

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